611-TD-604-001

EOSDIS Core System Project

M&O Procedures: Section 16—Ingest

Interim Update

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Raytheon Systems Company
Upper Marlboro, Maryland

Preface

This document is an interim update to the Mission Operations Procedures Manual for the ECS Project, document number 611-CD-600-001. This document has not been submitted to NASA for approval, and should be considered unofficial.

The document has been updated to add procedures related to performing DTF-2 ingest. In addition, some other minor corrections were made.

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16. Ingest

16.1 Ingest Process

The Ingest function brings data into ECS from external data providers. The Ingest function is characterized by a collection of hardware and software that supports receiving data and transferring it to the appropriate ECS repositories on either a routine or ad hoc basis. Data to be ingested may be of several types including:

- Science data.
- Science software packages.

Ingest triggers subsequent archiving of the data, which may activate a trigger for data processing or other actions (e.g., if there are subscriptions for the data being ingested).

Ingest is the responsibility of DAAC Ingest Technicians. They monitor the different types of automated ingest and set up ingest from hard media (e.g., tape cartridges).

Ingest includes the following activities:

- Data transfer and transmission checking.
- Data preprocessing (including data conversions if required).
- Metadata extraction (as required)
- Metadata validation (as required).
- Transferring ingested data to the Data Server Subsystem for long-term storage in the archive.

Ingest provides a single point of monitoring and control of data received from data providers outside the DAAC. The nominal ingest process is fully automated, with minimal operator intervention.

Subsequent sections related to Ingest address the following topics:

- Section 16.2 An overview of the process for processing ingest requests and step-by-step procedures for monitoring and controlling ingest requests.
- Section 16.3 An overview of the process and step-by-step procedures for performing media ingest operations.
- Section 16.4 An overview of the process and step-by-step procedures for performing scanning operations.
- Section 16.5 An overview of the process and step-by-step procedures for tuning ingest parameters.
- Section 16.6 An overview of the process and step-by-step procedures for troubleshooting ingest failures.

16.2 Processing Ingest Requests

The Ingest Technicians use the ECS Ingest graphical user interface (GUI) and the Storage Management Control GUI to monitor and control ingest activities. Those activities involve receiving data and transferring it to the appropriate ECS repositories by several different methods. Ingest supports the following types of interfaces:

- Polling ingest with delivery record.
- Polling ingest without delivery record.
- Physical media ingest.
- Cross-DAAC/cross-mode ingest.

The method(s) of ingesting data from a particular data provider is (are) dictated by the provisions of the Interface Control Document (ICD) and Operations Agreement negotiated with the data provider.

Each procedure outlined has an **Activity Checklist** table that provides an overview of the task to be completed. The outline of the **Activity Checklist** is as follows:

Column one - **Order** shows the order in which tasks could be accomplished.

Column two - **Role** lists the Role/Manager/Operator responsible for performing the task.

Column three -**Task** provides a brief explanation of the task.

Column four - **Section** provides the Procedure (P) section number or Instruction (I) section number where details for performing the task can be found.

Column five - **Complete?** is used as a checklist to keep track of which task steps have been completed.

Table 16.2-1, below, provides an Activity Checklist for monitoring/controlling ingest requests.

Table 16.2-1. Monitoring/Controlling Ingest Requests - Activity Checklist (1 of 2)

Order	Role	Task	Section	Complete?
1	Ingest Technician	Log in to ECS Hosts	(P) 16.2.1	
2	Ingest Technician	Launch the ECS Ingest GUI	(P) 16.2.2	
3	Ingest Technician	Launch the Storage Management Control GUI	(P) 16.2.3	
4	Ingest Technician	Handle Cross-DAAC or Cross-Mode Ingest	(P) 16.2.4	
5	Ingest Technician	Monitor/Control Ingest Requests	(P) 16.2.5	
6	Ingest Technician	Resume Ingest Requests	(P) 16.2.6	
7	Ingest Technician	Cancel Ingest Requests	(P) 16.2.7	
8	Ingest Technician	View the Ingest History Log	(P) 16.2.8	
9	Ingest Technician	Transfer Files	(P) 16.2.9	

Table 16.2-1. Monitoring/Controlling Ingest Requests - Activity Checklist (2 of 2)

Order	Role	Task	Section	Complete?
10	Ingest Technician	Verify the Archiving of Ingested Data	(P) 16.2.10	
11	Ingest Technician	Clean the Polling Directories	(P) 16.2.11	

16.2.1 Log in to ECS Hosts

Table 16.2-2 presents (in a condensed format) the steps required to log in to ECS hosts. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 At the UNIX command line prompt enter:

setenv DISPLAY <client name>:0.0

- Use either the X terminal/workstation IP address or the machine-name for the client name.
- When using secure shell, the DISPLAY variable is set just once, before logging in to remote hosts. If it were to be reset after logging in to a remote host, the security features would be compromised.

2 In the terminal window (at the command line prompt) start the log-in to the appropriate host by entering:

/tools/bin/ssh <host name>

- The **-l** option can be used with the ssh command to allow logging in to the remote host (or the local host for that matter) with a different user ID. For example, to log in to x0acs03 as user cmops enter:

  /tools/bin/ssh -l cmops x0acs03

- Depending on the set-up it may or may not be necessary to include the path (i.e., /tools/bin/) with the ssh command. Using ssh alone is often adequate. For example:

  ssh x0acs03

  - or -

  ssh -l cmops x0acs03

- Examples of Operations Workstation host names include **e0acs03**, **g0acs02**, **l0acs01**, **n0acs03**.
- Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01**, **n0icg01**.
- Examples of Interface Server 02 host names include **e0ins01**, **g0ins01**, **l0ins01**, **n0ins01**.
- Examples of Distribution Server host names include **e0dis02**, **g0dis02**, **l0dis02**, **n0dis02**.

- An example of a Working Storage host name is **e0wkg01**.
- Examples of SDSRV Server host names include **e0acs05**, **g0acs03**, **l0acs03**, **n0acs04**.
- Examples of Access/Process Coordinators (APC) Server host names include **e0acg11**, **g0acg01**, **l0acg02**, **n0acg01**.
- Examples of FSMS Server host names include **e0drg11**, **g0drg01**, **l0drg01**, **n0drg01**.
- If you receive the message, "Host key not found from the list of known hosts. Are you sure you want to continue connecting (yes/no)?" enter **yes** ("y" alone will not work).
- If you have previously set up a secure shell passphrase and executed **sshremote**, a prompt to **Enter passphrase for RSA key '<user@localhost>'** appears; continue with Step 3.
- If you have not previously set up a secure shell passphrase, go to Step 4.

3 If a prompt to **Enter passphrase for RSA key '<user@localhost>'** appears, enter:

<passphrase>

- If a command line prompt is displayed, log-in is complete.
- If the passphrase is unknown, press **Return/Enter**, which should cause a **<user@remotehost>'s password:** prompt to appear (after the second or third try if not after the first one), then go to Step 4.
- If the passphrase is entered improperly, a **<user@remotehost>'s password:** prompt should appear (after the second or third try if not after the first one); go to Step 4.

4 If a prompt for **<user@remotehost>'s password:** appears, enter:

<password>

- A command line prompt is displayed.
- Log-in is complete.

Table 16.2-2. Log in to ECS Hosts - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	**setenv DISPLAY <client name>:0.0**	**enter text, press Enter**
2	**/tools/bin/ssh <host name>**	**enter text, press Enter**
3	**<passphrase>** (if applicable)	**enter text, press Enter**
4	**<password>** (if applicable)	**enter text, press Enter**

16.2.2 Launch the ECS Ingest GUI

The **ECS Ingest** GUI is invoked from a UNIX command line prompt. Table 16.2-3 presents (in a condensed format) the steps required to launch the ECS Ingest GUI. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Operations Workstation host.

- Examples of Operations Workstation host names include **e0acs03**, **g0acs02**, **l0acs01**, **n0acs03**.
- For detailed instructions refer to the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 In the terminal window, at the command line, enter:

cd /usr/ecs/<MODE>/CUSTOM/utilities

- **<MODE>** is current mode of operation.
  - TS1 - Science Software Integration and Test (SSI&T)
  - TS2 - New Version Checkout
  - OPS - Normal Operations
- "utilities" is the directory containing the **ECS Ingest** GUI start-up script (e.g., EcInGUIStart).

3 If there are no other instances of the Ingest GUI currently running, start the **ECS Ingest** GUI by entering:

EcInGUIStart <MODE>

- The **ECS Ingest** GUI is launched.
- The **ECS Ingest** GUI **Ingest Intro** screen is displayed.
- Alternatively, enter:

  EcInGUIStart <MODE> ea_instance EcInGUI

- To determine whether there is already an instance of the Ingest GUI currently running, enter:

  ps –ef | grep <MODE>

  examine the response for the following type of statement:

  cmshared 10528 1 7 08:48:49 pts/1 0:07 /usr/ecs/OPS/CUSTOM/bin/INS/EcInGUI ConfigFile /usr/ecs/OPS/CUSTOM/cfg/EcInGUI.

  - Such a statement indicates that an instance of the Ingest GUI is currently running in OPS mode.

4 If there is already an instance of the Ingest GUI running, start the **ECS Ingest** GUI by entering:

EcInGUIStart <MODE> ea_instance <instance name>

- The **<instance name>** refers to one of the instances that have been defined in a file named .IngestGuiInstances [note the dot that precedes the name] that is located in the /usr/ecs/<MODE>/CUSTOM/data/INS/ subdirectory.
- The .IngestGuiInstances file in a particular mode might include the following instance names:
  - EcInGUI.D3 (instance set up for ingest from D3 tape).
  - EcInGUI.8MM (instance set up for ingest from 8mm tape).
  - EcInGUI (instance set up for general ingest operations).
- Given the preceding entries in the .IngestGuiInstances file, an instance of the Ingest GUI to support 8mm ingest would be started by entering the following command:

  EcInGUIStart OPS ea_instance EcInGUI.8MM
- The **ECS Ingest** GUI **Ingest Intro** screen is displayed.
  - The GUI instance is displayed on the title bar at the top of the GUI.

Table 16.2-3. Launch the ECS Ingest GUI - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	UNIX window (Operations Workstation)	**single-click** or use procedure in Section 16.2.1
2	**cd /usr/ecs/<MODE>/CUSTOM/utilities**	**enter text, press Enter**
3	**EcInGUIStart <MODE> ea_instance <instance name>**	**enter text, press Enter**

16.2.3 Launch the Storage Management Control GUI

The Ingest Technician can use the Storage Management Control GUI in Ingest physical media operations for taking media drives off line and putting the drives back on line.

The Storage Management Control GUI is invoked from a UNIX command line prompt. Table 16.2-4 presents (in a condensed format) the steps required to launch the Storage Management Control GUI. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Distribution Server host.
- Examples of Distribution Server host names include **e0dis02**, **g0dis02**, **l0dis02**, **n0dis02**.
- For detailed instructions refer to the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 In the terminal window, at the command line, enter:

cd /usr/ecs/<MODE>/CUSTOM/utilities

- **<MODE>** is current mode of operation.
  - TS1 - Science Software Integration and Test (SSI&T).
  - TS2 - New Version Checkout.
  - OPS - Normal Operations.
- "utilities" is the directory containing the **Storage Management Control** GUI startup script (e.g., EcDsStmgtGuiStart).

3 Start the **Storage Management Control** GUI by entering:

EcDsStmgtGuiStart <MODE>

- The **Storage Management Control** GUI is launched.
- The **Storage Management Control** GUI **Storage Config.** tab is displayed.

Table 16.2-4. Launch the Storage Management Control GUI - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	UNIX window (Distribution Server)	**single-click** or use procedure in Section 16.2.1
2	**cd /usr/ecs/<MODE>/CUSTOM/utilities**	**enter text, press Enter**
3	**EcDsStmgtGuiStart <MODE>**	**enter text, press Enter**

16.2.4 Handle Cross-DAAC or Cross-Mode Ingest

Cross-DAAC or cross-mode ingest is launched via either an order or a subscription for the desired data.

- If the data are already in the archive, an order is submitted using the **EOS Data Gateway** (EDG) web client.
  - An order for data can be placed via the EDG from almost anyplace by almost anyone.
- If the data are not already in the archive (if future data are to be transferred), a subscription is entered using the **Subscription Service** GUI.
  - A subscription is likely to be entered by User Services personnel at the Distributing DAAC.

In either case either a subscription or order is entered in the mode (e.g., OPS) from which the data are to be transferred. The subscription or order specifies (among other things)…

- The data to be transferred.
  - Parameters of the specific granule(s) if the data are being ordered.
  - Data type and other subscription parameters (e.g., from what date/time until what date/time) if a subscription is being entered.

- Media type is FtpPush.
- Media format is typically FILEFORMAT.
- User profile ID is the user profile ID of the nominal requester (if applicable).
- A username is specified for logging in to the ftp host at the receiving DAAC.
- A password is specified for logging in to the ftp host at the receiving DAAC.
- The ftp host is the host to which the data are to be pushed at the receiving DAAC (e.g., g0acg01u.ecs.nasa.gov).
- The ftp directory is the directory (on the ftp host) to which the data are to be pushed at the receiving DAAC/mode (e.g., /usr/ecs/OPS/CUSTOM/icl/a/data/XDAAC_Ingest/NSIDC/).
- The e-mail address is the address for the distribution notice (DN) that is sent by Data Distribution at the transmitting DAAC/mode to the Ingest E-Mail Parser (EcInEmailGWServer) in the receiving mode at the receiving DAAC.
  - The e-mail address for the Ingest E-Mail Parser has the following format:

    EcInEmailGWServer_<MODE>@<host>
  - For example:

    EcInEmailGWServer_TS1@e0ins01u.ecs.nasa.gov for data being sent for ingest in the TS1 mode at the EDC DAAC.

Assuming the processing of the subsequent acquire request(s) (from the subscription server or V0-ECS gateway as applicable) and processing of the distribution request(s) are successful, the following actions occur as the data are transferred from the transmitting DAAC/mode to the receiving DAAC/mode:

- The ftp daemon at the transmitting DAAC/mode performs the actual ftp of the files to the receiving DAAC/mode (e.g., /usr/ecs/OPS/CUSTOM/icl/a/data/XDAAC_Ingest/NSIDC/ on g0acg01u.ecs.nasa.gov).
- The Distribution Server at the transmitting DAAC/mode builds a distribution notice that the user's order has been fulfilled and sends the DN to Ingest at the receiving DAAC/mode via e-mail.
- The Ingest E-Mail Parser (EcInEmailGWServer) at the receiving DAAC/mode stores the DN as a text file (e.g., DDIST.notify11072001130203) in the EmailDirectory (e.g., /usr/ecs/OPS/CUSTOM/data/INS/local/InEmailGWServerPollingDirectory on g0ins01).
- While polling the EmailDirectory, the Ingest E-Mail Parser at the receiving DAAC/mode detects files matching the *.notify mask.
- The Ingest E-Mail Parser at the receiving DAAC/mode parses the Distribution Notice file.

- The Ingest E-Mail Parser at the receiving DAAC/mode generates a PDR file (e.g., DDIST11072001130203.PDR).
  - When generating the PDR, the Ingest E-Mail Parser uses the ESDT, FTPHOST, FTPDIR, FILENAME, and FILESIZE fields in the Distribution Notice.
  - The Ingest E-Mail Parser sets the ORIGINATING_SYSTEM in the PDR to "DDIST".
  - If there is an error in generating a PDR, the e-mail message (Distribution Notice) is moved to the directory specified in the FailedDirectory configuration parameter (e.g., /usr/ecs/OPS/CUSTOM/data/INS/local/InEmailGWServerFailedDirectory).
- The Ingest E-Mail Parser at the receiving DAAC/mode copies the PDR file to the EcInPolling.DDIST polling directory (e.g., /usr/ecs/OPS/CUSTOM/data/INS/local/IngestPollingDirectory on g0ins01) at the receiving DAAC/mode.
- EcInPolling.DDIST at the receiving DAAC/mode detects files matching the *.PDR mask.
- EcInPolling.DDIST at the receiving DAAC/mode packages the PDR information into an Ingest Request.
- Ingest processing proceeds as a typical polling ingest with delivery record.

Table 16.2-5 presents (in a condensed format) the steps required to handle cross-DAAC or cross-mode ingest. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Submit a request to User Services (at the DAAC where the data are currently available) to create an order or subscription (as applicable) to have data transferred to a different mode or DAAC.

- The following data (as applicable) are needed to create the order or subscription:
  - Parameters of the data to be transferred, including parameters of the specific granule(s) if the data are being ordered or data type and other subscription parameters (e.g., from what date/time until what date/time) if a subscription is being entered.
  - Media type (FtpPush).
  - Media format (typically FILEFORMAT).
  - User profile ID (if applicable).
  - Username for logging in to the ftp host at the receiving DAAC.
  - Password for logging in to the ftp host at the receiving DAAC.
  - ftp host to which the data are to be pushed at the receiving DAAC (e.g., g0acg01u.ecs.nasa.gov).
  - ftp directory (on the ftp host) to which the data are to be pushed at the receiving DAAC/mode (e.g., /usr/ecs/OPS/CUSTOM/icl/a/data/XDAAC_Ingest/NSIDC/).
  - e-mail address for the DN sent to the Ingest E-Mail Parser (EcInEmailGWServer) in the receiving mode at the receiving DAAC (e.g., EcInEmailGWServer_TS1@e0ins01u.ecs.nasa.gov).

2 At the receiving DAAC monitor request processing to ensure that the data are received and ingested.

- For detailed instructions refer to the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

3 If the data are not received as expected, contact (e.g., by telephone or e-mail) User Services at the DAAC where the order or subscription was submitted to determine the nature of the problem and have it corrected.

Table 16.2-5. Handle Cross-DAAC or Cross-Mode Ingest - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	Request User Services to create an order or subscription (as applicable) to have data transferred to a different mode or DAAC	**contact User Services at the DAAC where the data are currently available**
2	If at the receiving DAAC, ensure that the data are received and ingested	Use procedure in Section 16.2.5
3	If the data are not received as expected, determine the nature of the problem and have it corrected	**contact User Services at the DAAC where the order or subscription was submitted**

16.2.5 Monitor/Control Ingest Requests

The Ingest Technician monitors and manages ingest requests primarily via the Ingest **Monitor/Control** screen on the **ECS Ingest** GUI. From the **Monitor/Control** screen the DAAC Ingest Technician can perform the following functions:

- View ingest requests.
  - Text View.
  - Graphical View.
- Cancel a request or granule within a request.
- Resume processing of a suspended request or granule within a request.
- Filter on all or specific requests by...
  - Request ID.
  - Data Provider.
  - All Requests.

Table 16.2-6 presents (in a condensed format) the steps required to monitor/control ingest requests. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If it is not already being displayed, launch the **ECS Ingest** GUI (refer to Section 16.2.2).
- The **ECS Ingest** GUI is displayed.

2 **Single-click** on the **ECS Ingest** GUI **Monitor/Control** tab.
- The **Monitor/Control** screen is displayed.

3 **Single-click** on the appropriate button from the following selections:
- **Request ID** - to display the status of a particular **ingest request**.
  - Go to Step 4.
- **Data Provider** - to display the status of current and recent ingest requests for a particular **data provider** (e.g., **EDOS**).
  - Go to Step 5.
- **All Requests** - to display the status of **all** current and recent ingest requests.
  - All ongoing and recently completed ingest requests are displayed.
  - Go to Step 6.

4 If the status of a particular **ingest request** is to be displayed, in the **Request ID** field enter:

<request ID>

- An alternative method of designating the request ID is to copy and paste (if possible) the request ID into the **Request ID** field.
- Go to Step 6.

5 If the status of current and recent ingest requests for a particular **data provider** (e.g., **EDOS**) is to be displayed, first **single-click** and **hold** on the option button to the right of the **Data Provider** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button.
- An alternative method of designating the data provider is to first type it in the **Data Provider** field.
- Ongoing requests from the selected data provider are displayed.

6 **Single-click** on the appropriate button from the following selections:
- **Graphical View** - to display the following information, including a bar graph that indicates the percentage of the ingest process that has been completed:
  - **Request ID**.
  - **Processing Start Date/Time**.
  - **Percent Complete** (bar graph representing ingest completion in percent).
  - **External Data Provider**.

- **Text View** - to display numerical values representing the percentage of the ingest process that has been completed in addition to much other information concerning the ingest request.
  - **Request ID**.
  - **Status** [of the request].
  - **Data Provider**.
  - **Ingest Type**.
  - **Priority** [of the request].
  - **Start Date**.
  - **Start Time**.
  - **End Date**.
  - **End Time**.
  - **Ttl # Gran** [total number of granules in the ingest request].
  - **Data Vol (MB)** [volume of data in Megabytes].
  - **Xfer Percent Complete** [percent of data transfer (into Ingest) that has been completed].
  - **Preproc Percent Complete** [percent of preprocessing that has been completed].
  - **Arch Percent Complete** [percent of data insertion into the data repository (archive) that has been completed].

7 Observe ingest requests displayed on the **Monitor/Control** screen.
- Horizontal and vertical scroll bars appear as needed to allow viewing data that are not readily visible in the window.
- **Double-clicking** on an ingest request on the **Monitor/Control** screen provides the status of the granules associated with the request.

8 If necessary, resume processing of suspended request(s) or granule(s).
- Status of request(s), as displayed in the **Status** column on the **Monitor/Control** screen (**Text View**), change(s) to the appropriate state(s).
- For detailed instructions refer to the **Resume Ingest Requests** procedure (Section 16.2.6).

9 If necessary, cancel request(s) or granule(s).
- Status of request(s), as displayed in the **Status** column on the **Monitor/Control** screen (**Text View**), change(s) to the appropriate state(s).
- For detailed instructions refer to the **Cancel Ingest Requests** procedure (Section 16.2.7).

10 If there is a data ingest failure, troubleshoot the problem.
- For detailed instructions refer to the **Troubleshoot a Data Ingest Failure** procedure (Section 16.6.1).

11 Repeat Steps 3 through 10 as necessary to monitor ingest requests.

12 If necessary, exit from the **ECS Ingest** GUI by executing the following menu path:

File → Exit

- The **ECS Ingest** GUI disappears.

Table 16.2-6. Monitor/Control Ingest Requests - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	Launch the **ECS Ingest** GUI (if necessary)	Use procedure in Section 16.2.2
2	**Monitor/Control** tab	**single-click**
3	**Request ID** button, **Data Provider** button, or **All Requests** button as applicable	**single-click**
4	**<request ID>** (if applicable)	**enter text**
5	**Data Provider** option (if applicable)	**single-click**
6	**Graphical View** button or **Text View** button as applicable	**single-click**
7	Observe ingest request information	**read text**
8	Resume processing of suspended request(s) or granule(s) if necessary	Use procedure in Section 16.2.6
9	Cancel ingest request(s) or granule(s) if necessary	Use procedure in Section 16.2.7
10	Troubleshoot data ingest failures as necessary	Use procedure in Section 16.6.1
11	Repeat Steps 3 through 10 as necessary	
12	**File → Exit** (when applicable)	**single-click**

16.2.6 Resume Ingest Requests

The procedure to **Resume Ingest Requests** is performed as part of the **Monitor/Control Ingest Requests** procedure (Section 16.2.5). If the system has suspended an ingest request or one or more granules in a request and the problem that caused the suspension has been resolved, the processing of the request/granule(s) should be resumed. The **Monitor/Control** tab on the **ECS Ingest** GUI provides the Ingest Technician with a means of resuming ingest requests.

Table 16.2-7 presents (in a condensed format) the steps required to resume ingest requests. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If an entire request is to be resumed, **single-click** on the request to be resumed on the **Monitor/Control** tab.
- Either the selected ingest request is highlighted (Text View) or a checkmark is visible in the box to the left of the request information (Graphical View).
- Proceed to Step 5 if processing of an entire request is to be resumed; otherwise, go to Step 2.

2 If resuming the processing of one or more granules in a request, **single-click** on the **Text View** button.
- **ECS Ingest** GUI **Text View** is displayed.

3 If resuming the processing of one or more granules in a request, **double-click** on the request containing the granule(s) to be resumed.
- Information concerning the state of each granule in the request is displayed (one row per granule).

4 If resuming the processing of one or more granules in a request, **single-click** on one of the granules to be resumed.
- The selected granule is highlighted.

5 **Single-click** on the **Resume** button.

6 **Single-click** on the **OK** button at the bottom of the GUI.
- A **Resume Request Confirmation Dialogue Box** is displayed.

7 **Single-click** on the appropriate button from the following selections:
- **Yes** – to confirm resuming processing of the request or granule.
  - The **Resume Request Confirmation Dialogue Box** is dismissed.
  - The selected ingest request or granule resumes processing.
  - Status of the request or granule, as displayed in the **Status** column of the **Request Information** list (if using **Text View**), changes from "Suspended" to "Resuming" then to whatever state is appropriate for the continuation of request/granule processing (depending on its status when it was suspended).
  - A **Request Control Status Information Dialogue Box** is displayed.
- **No** – to cancel resuming processing of the request or granule.
  - The **Resume Request Confirmation Dialogue Box** is dismissed.
  - The selected ingest request or granule remains in a "Suspended" state.
  - Proceed to Step 9.

8 **Single-click** on the **OK** button.
- The **Request Control Status Information Dialogue Box** is dismissed.

9 Return to Step 4 to resume the processing of another granule in the request (if applicable).

10 Return to Step 1 to resume the processing of another request (if applicable).

11 Return to the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

Table 16.2-7. Resume Ingest Requests - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	**<request ID>** (if entire request is to be resumed)	**single-click**
2	**Text View** button (if resuming the processing of one or more granules in a request)	**single-click**
3	**<request ID>** (if resuming the processing of one or more granules in a request)	**double-click**
4	**<granule ID>** (if resuming the processing of one or more granules in a request)	**single-click**
5	**Resume** button	**single-click**
6	**OK** button	**single-click**
7	**Yes** button	**single-click**
8	**OK** button	**single-click**
9	Return to Step 4 (if applicable)	
10	Return to Step 1 (if applicable)	
11	Return to **Monitor/Control Ingest Requests** (when applicable)	Use procedure in Section 16.2.5

16.2.7 Cancel Ingest Requests

The procedure to **Cancel Ingest Requests** is performed as part of the **Monitor/Control Ingest Requests** procedure (Section 16.2.5). The **Monitor/Control** tab on the **ECS Ingest** GUI provides the Ingest Technician with a means of canceling ingest requests.

Table 16.2-8 presents (in a condensed format) the steps required to cancel ingest requests. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If an entire request is to be canceled, **single-click** on the request to be canceled on the **Monitor/Control** tab.

- Either the selected ingest request is highlighted (Text View) or a checkmark is visible in the box to the left of the request information (Graphical View).
- Proceed to Step 5 if an entire request is to be canceled; otherwise, go to Step 2.

2 If canceling the processing of one or more granules in a request, **single-click** on the **Text View** button.
- **ECS Ingest** GUI **Text View** is displayed.

3 If canceling the processing of one or more granules in a request, **double-click** on the request containing the granule(s) to be canceled.
- Information concerning the state of each granule in the request is displayed (one row per granule).

4 If canceling the processing of one or more granules in a request, **single-click** on one of the granules to be canceled.
- The selected granule is highlighted.

5 **Single-click** on the **Cancel** button.

6 **Single-click** on the **OK** button at the bottom of the GUI.
- A **Cancel Request Confirmation Dialogue Box** is displayed.

7 **Single-click** on the appropriate button from the following selections:
- **Yes** – to confirm canceling the processing of the request or granule.
  - The **Cancel Request Confirmation Dialogue Box** is dismissed.
  - The selected ingest request or granule is canceled.
  - A **Request Control Status Information Dialogue Box** is displayed.
- **No** – to prevent canceling the processing of the request or granule.
  - The **Cancel Request Confirmation Dialogue Box** is dismissed.
  - The selected ingest request is not canceled.
  - Proceed to Step 9.

8 **Single-click** on the **OK** button.
- The **Request Control Status Information Dialogue Box** is dismissed.

9 Return to Step 4 to cancel the processing of another granule in the request (if applicable).

10 Return to Step 1 to cancel the processing of another request (if applicable).

11 Return to the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

Table 16.2-8. Cancel Ingest Requests - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	**<request ID>** (if entire request is to be canceled)	**single-click**
2	**Text View** button (if canceling the processing of one or more granules in a request)	**single-click**
3	**<request ID>** (if canceling the processing of one or more granules in a request)	**double-click**
4	**<granule ID>** (if canceling the processing of one or more granules in a request)	**single-click**
5	**Cancel** button	**single-click**
6	**OK** button	**single-click**
7	**Yes** button	**single-click**
8	**OK** button	**single-click**
9	Return to Step 4 (if applicable)	
10	Return to Step 1 (if applicable)	
11	Return to **Monitor/Control Ingest Requests** (when applicable)	Use procedure in Section 16.2.5

16.2.8 View the Ingest History Log

The **History Log** tab on the **ECS Ingest** GUI **Operator Tools** tab allows the Ingest Technician to view statistics on completed ingest transactions. When an ingest transaction has been completed, several things happen:

- A notice is automatically sent to the data provider indicating the status of the ingested data.
- The data provider sends an acknowledgment of that notice.
- Receipt of the acknowledgment is logged by ECS.
- The request ID of that ingest request is removed from the list of active requests.
- The Ingest History Log receives statistics on the completed transaction.

The following four search criteria can be used individually or in combination to view entries in the Ingest History Log:

- **Time Period** (Start and Stop Date/Time).
- **Data Provider ID** (e.g., EDOS, NOAA, or a science team).
- **Data Type** (e.g., AST_L1B).
- **Final Request Status** (e.g., Successful, Failed, or Terminated).

The Ingest History Log provides reports in the following formats:

- **Detailed Report** gives detailed information about each completed ingest request.

- **Summary Report** is a summary of ingest processing statistics, including the average and maximum time taken to perform each step in the ingest process.
  - **Request-level** Summary Report provides ingest request processing statistics.
  - **Granule-level** Summary Report provides ingest granule processing statistics organized by data provider and Earth Science Data Type (ESDT):

Table 16.2-9 presents (in a condensed format) the steps required to view the ingest history log. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If it is not already being displayed, launch the **ECS Ingest** GUI (refer to Section 16.2.2).
- The **ECS Ingest** GUI is displayed.

2 **Single-click** on the **ECS Ingest** GUI **History Log** tab.
- The **History Log** screen is displayed.
- If History Log entries are to be displayed on the basis of a particular….
  - **time period**, perform Steps 3 and 4. (If no time period is specified, log entries for the most recent 24-hour period will be displayed.)
  - **data provider**, perform Step 5.
  - **data type**, perform Step 6.
  - **final request status**, perform Step 7.
- Any of the preceding criteria (time period, data provider, data type, or final request status) may be used individually or in combination to view entries in the Ingest History Log.

3 To view Ingest History Log entries for a particular time period, enter the desired data start date and time in the **Start Date/Time month/day/year hour/min/sec** fields in the following format:

<M(M)/D(D)/YYYY hh:mm:ss>

- The **Tab** key may be pressed to move the cursor from field to field.
- Use the 24-hour format to designate the hour (e.g., type **14** to designate 2 p.m.) in the **hour** fields.
- If using the **Tab** key to advance from one field to the next, it is possible to bypass the entry of **seconds** by pressing the **Tab** key.

4 To view Ingest History Log entries for a particular time period, enter the desired data end date and time in the **Stop Date/Time month/day/year hour/min/sec** fields in the following format:

<M(M)/D(D)/YYYY hh:mm:ss>

5 To view log entries for a particular data provider **single-click** and **hold** on the option button to the right of the **Data Provider** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button.

- An alternative method of designating the data provider is to type it in the **Data Provider** field.

6 To view log entries of a particular data type **single-click** and **hold** on the option button to the right of the **Data Type** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button.

7 To view log entries with a particular final request status **single-click** and **hold** on the option button to the right of the **Final Request Status** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button.

- An alternative method of designating the final request status is to type it in the **Final Request Status** field.

8 **Single-click** on the appropriate button from the following selections:

- **Detailed Report** – to see the following types of information on each completed ingest request:
  - **Request ID.**
  - **Data Provider.**
  - **Status.**
  - **Ingest Type.**
  - **Start Date.**
  - **Start Time.**
  - **End Date.**
  - **End Time.**
  - **Ttl # Gran** [total number of granules in the ingest request].
  - **#Success Gran** [total number of granules in the ingest request that were successfully ingested].
  - **Data Vol (MB)** [volume of data in Megabytes].
  - **File Count.**
  - **Time to Xfer (mins)** [transfer time in minutes].
  - **Time to Preproc (mins)** [preprocessing time in minutes].
  - **Time to Archive (mins).**
  - **Priority.**
  - **Restart Flag.**
- **Summary Report** – to see a summary that includes the average and maximum time needed to perform each step in the ingest process. (Refer to the next step for additional information.)

9 If the **Summary Report** button was selected in the preceding step, **single-click** on the appropriate button from the following selections:

- **Request level** – to see the following Ingest request processing statistics:
  - **Data Provider.**
  - **Ttl Reqs** [total number of requests].
  - **Total Errs** [total number of errors per request].
  - **Gran Avg** [average number of granules per request].
  - **Gran Max** [maximum number of granules in a request].
  - **File Avg** [average number of files per request].
  - **File Max** [maximum number of files in a request].
  - **Size (MB) Avg** [average request size in Megabytes].
  - **Size (MB) Max** [maximum request size in Megabytes].
  - **Transfer Time (mins) Avg** [average request transfer time in minutes].
  - **Transfer Time (mins) Max** [maximum request transfer time in minutes].
  - **Preproc Time (mins) Avg** [average request preprocessing time in minutes].
  - **Preproc Time (mins) Max** [maximum request preprocessing time in minutes].
  - **Archive Time (mins) Avg** [average request archiving time in minutes].
  - **Archive Time (mins) Max** [maximum request archiving time in minutes].
- **Granule level** – to see the following types of information organized by data provider and Earth Science Data Type (ESDT):
  - **Data Provider.**
  - **Data Type.**
  - **Total Granules.**
  - **Total Errors.**
  - **File Avg.**
  - **File Max.**
  - **Size (MB) Avg.**
  - **Size (MB) Max.**
  - **Transfer Time (mins) Avg.**
  - **Transfer Time (mins) Max.**
  - **Preproc Time (mins) Avg.**
  - **Preproc Time (mins) Max.**
  - **Archive Time (mins) Avg.**
  - **Archive Time (mins) Max.**

10 **Single-click** on the **Display** button.

- Each ingest request that was completed, logged, and meets the specified criteria (time period, data provider, data type, and/or final status) is displayed.

11 Observe ingest request information.

- Ingest request information is displayed in the **History Log/Processing Statistics** field.

12 If a printed report is desired, execute the following menu path:

File → Print

- If it is not possible to print a report from the GUI, the corresponding file is available in the **/usr/ecs/<MODE>/CUSTOM/temp/INS** directory and can be printed using conventional UNIX commands (e.g., lp or lpr).

13 To clear the display after viewing the history log data on the screen, **single-click** on the appropriate button from the following selections:

- **Clear All** – to erase entries in the **Search Criteria** fields and the **History Log/Processing Statistics** field.
- **Go Back** – to erase entries in the **Search Criteria** fields and the **History Log/Processing Statistics** field.
  - The **Go Back** button is not always displayed on the GUI; it depends on the type of report being displayed on the screen.

Table 16.2-9. View the Ingest History Log - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	Launch the **ECS Ingest** GUI (if necessary)	Use procedure in Section 16.2.2
2	**History Log** tab	**single-click**
3	**<M(M)/D(D)/YYYY hh:mm:ss>** (in **Start Date/Time month/day/year hour/min/sec** fields) (if applicable)	**enter text, press Tab**
4	**<M(M)/D(D)/YYYY hh:mm:ss>** (in **Stop Date/Time month/day/year hour/min/sec** fields) (if applicable)	**enter text, press Tab**
5	**<data provider>** (from **Data Provider** list) (if applicable)	**single-click**
6	**<data type>** (from **Data Type** list) (if applicable)	**single-click**
7	**<final request status>** (from **Final Request Status** list) (if applicable)	**single-click**
8	Either **Detailed Report** or **Summary Report** button	**single-click**
9	Either **Request level** or **Granule level** button (if applicable)	**single-click**
10	**Display** button	**single-click**
11	Observe ingest request information	**read text**
12	**File → Print** (if applicable)	**single-click**
13	Either **Clear All** or **Go Back** button (if applicable)	**single-click**

16.2.9 Transfer Files

The **File Transfer** tool on the **ECS Ingest** GUI **Operator Tools** tab allows the Ingest Technician to transfer files to the science community. The file transfer tool allows the Ingest Technician to build a System Monitoring and Coordination Center (SMC) History File or select any file to be transferred from a specified point of origin to a destination desired by the user.

Table 16.2-10 presents (in a condensed format) the steps required to transfer files. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If it is not already being displayed, launch the **ECS Ingest** GUI (refer to Section 16.2.2).
- The **ECS Ingest** GUI is displayed.

2 **Single-click** on the **ECS Ingest** GUI **Operator Tools** tab.
- The **Operator Tool** screen is displayed.

3 Single-click on the **File Transfer** tab.
- The **File Transfer** screen is displayed.

4 Single-click on the appropriate button from the following selections:
- **Build SMC History Files** – creates the following two types of files in the /usr/ecs/<MODE>/CUSTOM/temp/INS directory:
  - SMCHeaderFile.
  - SMCdataFile.
- **Generic File Transfer** – allows any type of directory or file to be transferred.

5 Verify that the path in the **Filter** field (in the **Transfer Origin** box) is appropriate for searching for the file to be transferred.
- If the path in the **Filter** field is **not** appropriate for searching for the file to be transferred, in the **Filter** field enter:

  <path>
- Ensure that the path in the **Filter** field ends with a slash and an asterisk (**/*****); otherwise, no files are listed.

6 **Single-click** on the **Filter** button.
- A list of subdirectories in the last directory shown in the **Filter** field is displayed in the **Directories** field.
- A list of files in the last directory shown in the **Filter** field is displayed in the **Files** field.

7 If the file to be transferred is not listed in the **Files** field but may be in one of the subdirectories listed in the **Directories** field, **single-click** on the subdirectory where the file may be located.

8 **Single-click** on the **Filter** button.
- The path shown in the **Filter** field is modified to include the selected subdirectory.
- A list of subdirectories in the last directory shown in the **Filter** field is displayed in the **Directories** field.
- A list of files in the last directory shown in the **Filter** field is displayed in the **Files** field.

9 Repeat Steps 7 and 8 as necessary until the file to be transferred is listed in the **Files** field.

10 In the **Files** field **single-click** on the file to be transferred.
- The highlighted file is entered into the **Selection** field.

11 **Single-click** on the **OK** button in the **Transfer Origin** box.

12 Verify that the file to be transferred (including the correct path to the file) is displayed in the **Selection** field.
- Use either of the following methods to display the file to be transferred in the **Selection** field:
  - Repeat the Steps 5 through 11 as necessary to display the file to be transferred in the **Selection** field.
  - In the **Selection** field enter:

    <path>/<file name>

13 In the **Transfer Destination** field enter:

<host name>/<path>

- For example:

  g0drg01/usr/ecs/OPS/CUSTOM/data

14 **Single-click** on the **OK** button at the bottom of the **Operator Tools: File Transfer** tab to execute the file transfer.
- The file is transferred.

Table 16.2-10. Transfer Files - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	Launch the **ECS Ingest** GUI (if necessary)	Use procedure in Section 16.2.2
2	**Operator Tools** tab	**single-click**
3	**File Transfer** tab	**single-click**
4	Either **Build SMC History Files** or **Generic File Transfer** button	**single-click**
5	**<path>** (**Filter** field, **Transfer Origin** box) (if applicable)	**enter text**
6	**Filter** button	**single-click**
7	**<subdirectory>** (**Directories** field)	**single-click**
8	**Filter** button	**single-click**
9	Repeat Steps 7 and 8 as necessary	**single-click**
10	**<file>** (**Files** field)	**single-click**
11	**OK** button (**Transfer Origin** box)	**single-click**
12	**<path>/<file name>** (**Selection** field)	**enter text**
13	**<host name>/<path>** (**Transfer Destination** field)	**enter text**
14	**OK** button (**Operator Tools: File Transfer** tab)	**single-click**

16.2.10 Verify the Archiving of Ingested Data

It is possible to determine whether Ingest has been successful by checking the appropriate directory on the File and Storage Management System (FSMS) host (e.g., g0drg01).

- The directories are identified by the type of data (e.g., aster, ceres, l7, modis) in them and correspond directly to tape volumes in the system.
- As long as one is checking for a limited range of granules the procedure is not likely to interfere with archive activities because it is just a matter of checking the relevant FSMS directory to determine whether the applicable files/granules have been transferred to tape volumes in the system.
- The procedure does not involve the use of any archive software.
- Before starting it is essential to know what data to look for. For example, End Date(s)/Time(s) and Data Volume(s) for ingest requests shown on the ECS Ingest GUI can be used for comparison with dates/times and file sizes listed for the files in the relevant directory on the FSMS host.

Table 16.2-11 presents (in a condensed format) the steps required to verify the archiving of ingested data. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the FSMS Server host.

- Examples of FSMS Server host names include **e0drg11**, **g0drg01**, **l0drg01**, **n0drg01**.
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the command line prompt enter:

cd /dss_stk1/<MODE>/<data type>

- Change directory to the directory containing the archive data (e.g., /dss_stk1/OPS/modis/).
  - The specific path varies from site to site and with the operating mode and type of data being ingested.
- The **<MODE>** will most likely be one of the following operating modes:
  - OPS (for normal operation).
  - TS1 (for SSI&T).
  - TS2 (new version checkout).

3 At the command line prompt enter:

ls –la | grep '<Month> <Day>'

- For example, to list the granules inserted on March 17, enter the following statement:

  ls –la | grep 'Mar 17'

- To list the granules inserted between 2:00 P.M and 3:00 P.M. on March 17, enter the following statement:

  ls –la | grep 'Mar 17' | grep 14:

- It is important to limit the listing (e.g., to a particular day). If there are tens of thousands of granules in the directory, just doing a listing of the directory would cause serious performance problems.
- A list of subdirectories and files in the current directory is displayed.
- The list should include the ingested data.
- If necessary, continue changing directory until the relevant granules/files have been located.

4 Compare the End Date(s)/Time(s) and Data Volume(s) for the applicable ingest request(s) shown on the Ingest GUI with the dates/times and file sizes listed for the files in the directory.

Table 16.2-11. Verify the Archiving of Ingested Data - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	UNIX window (FSMS Server)	**single-click** or use procedure in Section 16.2.1
2	**cd /dss_stk1/<MODE>/<data type>**	**enter text, press Enter**
3	**ls –la | grep '<Month> <Day>'**	**enter text, press Enter**
4	Compare ingest request data on the Ingest GUI with data listed for the files in the directory	**read text**

16.2.11 Clean the Polling Directories

The polling directories should be cleaned up (have old files deleted) after successful archiving, otherwise they would quickly run out of disk space. Automatic clean-up should be available. However, it may still be useful to know how to use the clean-up scripts.

Table 16.2-12 presents (in a condensed format) the steps required to clean the polling directories. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Operations Workstation.

- Examples of Operations Workstation host names include **e0acs03**, **g0acs02**, **l0acs01**, **n0acs03**.
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the command line prompt enter:

cd /usr/ecs/<MODE>/CUSTOM/utilities

- Change directory to the directory containing the ingest polling directory clean-up script (e.g., EcInEDOSCleanupMain, EcInPollClean).

3 At the command line prompt enter:

<script name> /<path> <days>

- **<script name>** refers to the name of the appropriate ingest polling directory clean-up script (e.g., EcInEDOSCleanupMain, EcInPollClean).
- **<path>** refers to the directory path to the polling directory (e.g., /usr/ecs/<MODE>/CUSTOM/icl/<INS host>/data/pollEDOS).
- **<days>** refers to a number of days; any files in the EDOS polling directory (and subdirectories) older than the specified number of days will be deleted.

- If there are **no** files in the directory older than the specified number of days, the script quits after displaying the following message:

  ######## There is no file in this directory older than x days.
  ######## Exit deletion.

- If there are files in the directory older than the specified number of days, a message similar to the following message is displayed:

  ######## The following are files older than x days in directory:. ########
  ######## pollEDOS
  ########
  ######## Please check before deleting them.
  Shall we continue deletion? Type y or n only :

4 If there are files in the directory older than the specified number of days, at the Shall we continue deletion? Type y or n only : prompt enter (as appropriate):

y

- or -

n

- Either lower-case or upper-case letters may be typed.
- If **n** was entered, the script quits after the following message is displayed:

  ######## The answer is No.
  ######## Do not continue deletion.

- If **y** was entered, the script continues after the following message is displayed:

  ######## The answer is Yes.
  ######## Continue deletion.

  – The script quits after the files that meet the specified age criteria have been deleted.

Table 16.2-12. Clean the Polling Directories - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	UNIX window (Operations Workstation)	**Single-click** or use procedure in Section 16.2.1
2	**cd /usr/ecs/<MODE>/CUSTOM/utilities**	**Enter text, press Enter**
3	**<script name> /<path> <days>**	**Enter text, press Enter**
4	Either **y** or **n** (as appropriate)	**Enter text, press Enter**

16.3 Performing Media Ingest Operations

ECS currently supports hard media ingest from any of the following types of media, although all types may not be supported at all sites:

- 8mm tape cartridges.
  - Each 8mm stacker contains two tape drives and can store up to 10 tape cartridges.
  - A tape cartridge (8mm, D3, or DTF-2) may (or may not) be identified by means of a bar-code label that shows the media number.
- D3 tape cartridges.
- DTF-2 tape cartridges.

Eventually media ingest from D3 tape cartridges will be discontinued in favor of ingest from DTF-2 tapes.

Ingest of data (e.g., data from the science community) from physical media into ECS is performed by the DAAC Ingest Technician using the **Media Ingest** tool on the **ECS Ingest** GUI. In addition, the DAAC Ingest Technician may need to use the **Storage Config.** screen on the **Storage Management Control** GUI to control media drives.

- A **Product Delivery Record (PDR)** or **Physical Media Product Delivery Record (PMPDR)** file is required for hard media ingest; it may be handled in one of two ways.
  - Embedded in (recorded on) the hard medium.
  - Made available electronically (e.g., in a specified network directory). In this case the data provider transfers the delivery record file [using ftp or secure ftp (sftp)] to the network directory location before delivery of the hard medium.
- The Ingest Technician uses the **Media Ingest** screen of the **ECS Ingest** GUI, mounts the media on a specific device, and enters necessary parameters.
- The Ingest Technician monitors and responds to error messages displayed on the **ECS Ingest** GUI and reviews data errors with appropriate parties (e.g., the DAAC Archive Manager, Science Data Specialist, and/or the data provider).

DAAC policy may require a bar-code label on each tape that contains data to be ingested. The labels are typically already on the tape when received from the data provider. However, the Ingest Technician may affix the labels to the tape cartridges if necessary.

Table 16.3-1, below, provides an Activity Checklist for performing media ingest operations.

Table 16.3-1. Performing Media Ingest Operations - Activity Checklist (1 of 2)

Order	Role	Task	Section	Complete?
1	Ingest Technician	Unload and Load Stackers	(P) 16.3.1	
2	Ingest Technician	Perform Media Ingest from 8mm Tape	(P) 16.3.2	
3	Ingest Technician	Perform Media Ingest from D3 Tape	(P) 16.3.3	
4	Ingest Technician	Load a DTF-2 Drive	(P) 16.3.4	

Table 16.3-1. Performing Media Ingest Operations - Activity Checklist (2 of 2)

Order	Role	Task	Section	Complete?
5	Ingest Technician	Perform Media Ingest from DTF-2 Tape	(P) 16.3.5	
6	Ingest Technician	Unload a DTF-2 Drive	(P) 16.3.6	

16.3.1 Unload and Load Stackers

The procedure that follows applies to ingest from 8mm tape cartridges only. It involves the use of the **Storage Management Control** GUI to perform the following activities:

- Unload a tape stacker.
- Load a tape stacker.

Table 16.3-2 presents (in a condensed format) the steps required to unload and load stackers. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Launch the **Storage Management Control** GUI (refer to Section 16.2.3).
- The **Storage Management Control** GUI is displayed.

2 **Single-click** on the **Resource Mngmnt** tab on the **Storage Management Control** GUI.
- The **Storage Management Control** GUI **Resource Mngmnt** tab is displayed.

3 **Single-click** and **hold** the **Media Type** option button to display a menu of media, **move** the mouse cursor to the appropriate type of medium (highlighting it), then **release** the mouse button.
- The selected type of medium is displayed on the **Media Type** option button.
- The relevant server(s) is (are) displayed in the **Media Type** window below the **Media Type** option button.
- The following type of information is displayed for each server displayed in the window below the **Media Type** option button:
  - **Server ID.**
  - **Status.**

4 **Single-click** on the relevant server in the **Media Type** window.
- The selected server is highlighted.

5 **Single-click** on the **Manage Hardware** button on the **Resource Mngmnt** tab.
- The **Manage Stackers** window is displayed.
- The available stackers are listed in the stacker information window near the top of the **Manage Stackers** window.

6 **Single-click** on the line in the stacker information window corresponding to the stacker to be loaded (or unloaded and reloaded).

- The stacker(s) to be loaded (or unloaded and reloaded) is (are) highlighted.
- The **Select All** button below the stacker information window can be selected if all listed stackers are to be unloaded/loaded.

7 Observe the status of tapes/slots and drives in the stacker to ensure that stacker tapes can be unloaded/loaded without interfering with any ongoing operations.

- The status of tapes/slots in the stacker is displayed in the slot information window near the bottom of the **Manage Stackers** window.
  - **Loaded Status** column indicates whether the slot is loaded or empty. If the slot is "loaded," it has been assigned a particular tape (as described in Steps 22 through 26). If the slot is "empty," no tape has been identified for the slot.
  - **Allocated Status** column indicates whether or not the slot has been allocated for use by a request.
- The status of stacker drives is displayed in the drive information window near the middle of the **Manage Stackers** window.

8 If one of the drives is unavailable for 8mm ingest, **single-click** on the line in the drive information window corresponding to the unavailable drive.

- A drive may be unavailable for 8mm ingest if it is being used in a manual mode for reading or writing to a tape or if it is out of service for maintenance.

9 If one of the drives is unavailable for 8mm ingest and its **Online Status** is not **Offline**, **single-click** and **hold** the **Online Status** option button below the drive information window to display a menu of statuses, **move** the mouse cursor to **Offline** (highlighting it), then **release** the mouse button.

- If one of the drives is unavailable for 8mm ingest, it should be marked offline in the database (via the **Storage Management Control** GUI) so Storage Management will assign the 8mm ingest to the drive that is available.
  - Stacker operations are managed through tables in the Storage Management database.
  - If an offline drive is not marked **Offline** in the database, the stacker may attempt to use the offline drive in response to an ingest request. In such a case the ingest request would fail and an “Unable to request mount media service” error message would be displayed.

10 Turn the key in the key-lock of the stacker to stop stacker unit operation.

11 Wait for the stacker cartridge handling mechanism to finish the current operation and move to the "park" position.
- When the handling mechanism reaches the "park" position, the stacker unit's door interlock mechanism releases and a **Status: Unlocked** message is displayed on the unit.

12 Open the front door of the stacker.

13 Remove the cartridge holder (sleeve) by pulling out, first from the top, then the bottom.

14 If applicable, remove the tape cartridge(s) by gently pulling each one straight out from its slot.
- Tapes can be removed and replaced individually without having to unload and load the entire stacker.

15 Verify that the write-protect switch (e.g., red tab) on each tape cartridge to be loaded is set correctly for the desired operation.
- Options are **REC** (writable) and **SAVE** (read only).
- Either position is acceptable for Ingest but **SAVE** is typically used.

16 If required by DAAC policy, verify that there is a bar-code label properly attached to the tape cartridge.

17 Hold the tape cartridge with the write-protect switch toward the right.

18 Insert the tape cartridge by pushing gently straight into a slot in the cartridge holder (sleeve).

19 Repeat Steps 15 through 18 for each tape cartridge to be loaded into the tape stacker.

20 **Single-click** on the line(s) in the slot information window near the bottom of the **Manage Stackers** window corresponding to the slot(s) to be loaded (or unloaded and reloaded).
- The slot(s) to be loaded (or unloaded and reloaded) is (are) highlighted.
- The **Select All** button below the stacker information window can be selected if all slots are to be unloaded/loaded.

21 If loading a stacker and the slot(s) to be loaded has (have) **Online Status** of **Offline**, **single-click** and **hold** the **Online Status** button, **move** the mouse cursor to the **Online** option (highlighting it), then **release** the mouse button.

22 **Single-click** and **hold** the **Media ID Assignment** button on the **Storage Management Control** GUI to display a menu of media assignment options, **move** the mouse cursor to the desired option (highlighting it), then **release** the mouse button.

- Options are: **Manual** and **Auto Increment**.
  - In **Manual** the technician must manually enter the "Media ID" for each tape loaded.
  - In **Auto Increment** the technician enters the first Media ID; any additional slots to be filled are assigned Media IDs that sequentially follow the Media ID entered by the technician.
- When using a handheld bar-code reader, the **Media ID Assignment** button should be set to **Manual**.

23 **Single-click** and **hold** the Media Operations button to display a menu of media operations, **move** the mouse cursor to the appropriate selection (highlighting it), then **release** the mouse button.

- The **Media Operations** pull-down menu offers options for loading and unloading media.
- Options are: **Load Media**, **Unload Media**, **Replace Media**, and **Load Media Set**.
  - **Load Media** allows the operator to load one or more pieces of media (e.g., to load a tape with data to be ingested into a currently empty slot).
  - **Unload Media** allows the operator to unload one or more pieces of media (e.g., to remove a tape with data that have just been ingested).
  - **Replace Media** allows the operator to both load and unload pieces of media as a single operation.
  - **Load Media Set** allows the operator to load a group of associated media that have been identified as a media set. Media sets must be predefined using the **Manage Media Sets** window, which is accessible through the **Manage Media Sets** button on the **Resource Mngmnt** tab of the **Storage Management Control** GUI.
- In general **Load Media** should be selected if the slot is empty; **Replace Media** should be selected if the slot is loaded (already contains a tape that has to be removed so another tape can be loaded).
  - If **Load Media** is selected, a stacker management **Load Media** window is displayed.
  - If **Replace Media** is selected, a **Replace Media** window is displayed.
  - If **Unload Media** is selected, a stacker management **Unload Media** window is displayed.
  - If **Load Media Set** is selected, a **Load Media Set** window is displayed.

24 **Single-click** on a line in the media window corresponding to a slot that was loaded (or unloaded and reloaded).

- A slot that was loaded (or unloaded and reloaded) is highlighted.

25 If applicable, in the **Supply Next Media ID** field of the media window enter:

<media ID>

- **<media ID>** is the identification of the tape specified on the label attached to the tape cartridge that was put in the corresponding slot.
- The media ID may be entered either by typing the information or using a hand-held bar-code reader (if available).
- When typing media IDs, be sure to press the **Return/Enter** key after typing each ID in the **Supply Next Media ID** field.
  - The media ID is displayed in the media window on the line corresponding to the selected slot.

26 Repeat Steps 24 and 25 if multiple tapes are being loaded.

27 **Single-click** on the appropriate button from the following selections:

- **OK** – to save the changes to media ID(s) and dismiss the media window.
  - The media window is dismissed.
  - If **Load Media** or **Replace Media** was the selected action, the media ID(s) is (are) displayed in the **Media ID** column of the slot information window near the bottom of the **Manage Stackers** window.
  - If **Unload Media** was the selected action, there is no media ID displayed in the **Media ID** column of the slot information window.
- **Cancel** – to dismiss the media window without saving changes to media ID(s).
  - The media window is dismissed.
  - The media ID information in the slot information window near the bottom of the **Manage Stackers** window is unchanged.

28 Replace the cartridge holder in the stacker by inserting the two orientation features on the bottom of the holder (sleeve) into the bottom of the plate then pressing on the top and snapping the holder (sleeve) in place.

29 Close the door to start the process of resuming tape stacker operation.

30 Lock the door by turning the key in the key-lock.

31 Observe the information displayed in the slot information window at the bottom of the **Manage Stackers** window to determine whether the "Access Mode" associated with each slot number is consistent with the setting of the write-protect switch on each tape loaded.

- The "Access Mode" associated with each slot number must be consistent with the setting of the write-protect switch on each tape loaded. (Refer to Step 15.)
- The following "Access Modes" are available:
  - **RO** - read only.
  - **RW** - read/write.

- If the "Access Mode" associated with any slot number does not need to be changed, go to Step 35; otherwise, continue with Step 32.

32 If the "Access Mode" for a slot is to be changed, **single-click** on the line in the slot information window corresponding to the slot with the "Access Mode" to be changed.
- The **Select All** button below the slot information window can be selected if all listed slots are to be set to the same "Access Mode."

33 **Single-click** and **hold** the **Access Mode** button to display a menu of access mode options, **move** the mouse cursor to the desired option (highlighting it), then **release** the mouse button.
- Options are: **RO** and **RW**.
- The **Access Mode** entry in the slot information window corresponding to the selected **Slot Number** changes to the selected value.

34 Repeat Steps 32 and 33 for each tape cartridge with an "Access Mode" to be changed.

35 To close the **Manage Stackers** window **single-click** on the **Close** button at the bottom of the window.
- The **Manage Stackers** window is dismissed.

36 To exit from the **Storage Management Control** GUI execute the following menu path:

File → **Exit**

Table 16.3-2. Unload and Load Stackers - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	Launch the **Storage Management Control** GUI	Use procedure in Section 16.2.3
2	**Resource Mngmnt** tab (**Storage Management Control** GUI)	**single-click**
3	**<media type>** (**Media Type** option button)	**single-click**
4	**<server>** (**Media Type** window)	**single-click**
5	**Manage Hardware** button	**single-click**
6	**<stacker>** (to be taken off line) (stacker information window)	**single-click**
7	Ensure that stacker tapes can be unloaded/loaded without interfering with any ongoing operations	**read text**
8	Unlock stacker door	**turn key**
9	Wait for the stacker cartridge handling mechanism to move to the “park” position	**wait**

Table 16.3-2. Unload and Load Stackers - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take
10	Open stacker door	**pull**
11	Remove the cartridge holder (sleeve)	**pull**
12	Remove tape cartridge(s)	**pull**
13	**SAVE** position (tape cartridge write-protect switch) (if desired)	**set switch**
14	Attach bar-code label to the tape cartridge (if necessary)	**attach**
15	Hold the tape cartridge with the write-protect switch toward the right	**orient**
16	Insert the tape cartridge into a slot in the cartridge holder	**push**
17	Repeat Steps 13 through 16 (as necessary)	
18	**<slot>** (in slot information window)	**single-click**
19	Either **Manual**, or **Auto Increment** (**Media ID Assignment** button) (as applicable)	**single-click**
20	**<media operation>** (**Media Operations** button)	**single-click**
21	**<slot>** (in media window)	**single-click**
22	**<media ID>** (for tape cartridge to be loaded)	**enter text, press Enter**
23	Repeat Steps 21 and 22 (as applicable)	
24	**OK** button	**single-click**
25	Replace the cartridge holder in the stacker	**insert bottom; press top in**
26	Close stacker door	**push**
27	Lock stacker door	**turn key**
28	Determine whether the "Access Mode" associated with each slot number is consistent with the setting of the write-protect switch on each tape loaded	**read text**
29	**<slot>** (with access mode to be changed) (slot information window) (if applicable)	**single-click**
30	**RO** (**Access Mode** button) (if applicable)	**single-click**
31	Repeat Steps 29 and 30 (as necessary)	
32	**Close** button (on **Manage Stackers** window) (when applicable)	**single-click**
33	**File** → **Exit** (when applicable)	**single-click**

16.3.2 Perform Media Ingest from 8mm Tape

The procedure to perform media ingest from 8mm tape starts with the following assumptions:

- The PDR/PMPDR file is available, either placed on the network by the data provider or embedded in the media.

- If applicable, the contents of the PDR/PMPDR on the tape have been compared with the contents of the hardcopy version of the PDR/PMPDR and there are no discrepancies.
  - If there had been any discrepancies between the contents of the PDR/PMPDR on the tape and the contents of the hardcopy version of the PDR/PMPDR, the data provider (e.g., IGS) was notified and subsequently supplied a corrected tape.
- All applicable servers are currently running.

Table 16.3-3 presents (in a condensed format) the steps required to perform media ingest from 8mm tape. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Load the tape containing the data to be ingested into a stacker by performing the **Unload and Load Stackers** procedure (Section 16.3.1).

2 Launch an additional instance of the **ECS Ingest** GUI (refer to Section 16.2.2).
- The **ECS Ingest** GUI is displayed.
- During data transfer from tape, the instance of the **ECS Ingest** GUI being used for media ingest prevents any other function from being selected by that instance of the GUI until the transfer has been completed.

3 **Single-click** on the **ECS Ingest** GUI **Media Ingest** tab.
- The **Media Ingest** screen is displayed.

4 To enter the type of medium (i.e., **8mm Tape**) **single-click** and **hold** on the option button to the right of the **Media Type** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button.
- The selected type of medium is displayed in the **Media Type** field.

5 To enter the data provider **single-click** and **hold** on the option button to the right of the **Data Provider** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button.
- The selected data provider is displayed in the **Data Provider** field.
  - For example, **IGSASA_Media** identifies a data provider.

6 In the **Media ID** field enter:

<media ID>

- **<media ID>** is the identification of the tape specified on the bar-code label attached to the tape cartridge.

7 **Single-click** on the appropriate radio button in the **Data Delivery Record File Location** box.

- Options are: **On Network** and **Embedded in Media**.
  - **On Network** indicates that the PMPDR file is located on the network.
  - **Embedded in Media** indicates that the PMPDR file is recorded on the tape.

8 In the **Data Delivery Record File Name** field enter:

<delivery record file name>

- For example, **IGSASA.19991020123845.PMPDR** is a data delivery record file name.

9 **Single-click** on the **OK** button at the bottom of the GUI.

- Data transfer is initiated.

10 While waiting for completion of data transfer from the tape, monitor request processing by performing the **Monitor/Control Ingest Requests** procedure (Section 16.2.5) using another instance of the **ECS Ingest** GUI.

- During data transfer from tape, the **ECS Ingest** GUI prevents any other function from being selected from the media-ingest instance of the GUI until the transfer has been completed.
- A **Media-Ingest Request Completed** pop-up window is displayed when data transfer from the tape has been completed.

11 **Single-click** on the **OK** button on the **Media-Ingest Request Completed** pop-up window associated with the **ECS Ingest** GUI.

- The **Media-Ingest Request Completed** pop-up window is dismissed.

12 To exit from the **ECS Ingest** GUI execute the following menu path:

File → Exit

Table 16.3-3. Perform Media Ingest from 8mm Tape - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	Load the tape containing the data to be ingested into a stacker	Use procedure in Section 16.3.1
2	Launch an additional instance of the **ECS Ingest** GUI	Use procedure in Section 16.2.2
3	**Media Ingest** tab (**ECS Ingest** GUI)	**single-click**
4	**<media type>** (**Media Type** option button)	**single-click**
5	**<data provider>** (**Data Provider** option button)	**single-click**
6	**<media ID>** [**Media ID** field]	**enter text**

Table 16.3-3. Perform Media Ingest from 8mm Tape - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take
7	Either **On Network** or **Embedded in Media** radio button (as applicable)	**single-click**
8	**<delivery record file name>** (**Data Delivery Record File Name** field)	**enter text**
9	**OK** button	**single-click**
10	Monitor request processing while waiting for completion of data transfer	Use procedure in Section 16.2.5
11	**OK** button (**Media-Ingest Request Completed** pop-up window)	**single-click**
12	**File** → **Exit** (when applicable)	**single-click**

16.3.3 Perform Media Ingest from D3 Tape

The DAAC Ingest Technician may have to ingest data from a D3 tape utilizing the Ingest GUI and the Storage Tek Controller/Transport Redwood SD-3 for D3 tape cartridge processing.

The **Perform Media Ingest from D3 Tape** procedure starts with the following assumptions:

- The PDR file is available, either placed on the network by the data provider or embedded in the media.
- All applicable servers are currently running.

Table 16.3-4 presents (in a condensed format) the steps required to perform media ingest from D3 tape. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Launch an additional instance of the **ECS Ingest** GUI (refer to Section 16.2.2).
- The **ECS Ingest** GUI is displayed.
- During data transfer from tape, the instance of the **ECS Ingest** GUI being used for media ingest prevents any other function from being selected by that instance of the GUI until the transfer has been completed.

2 Verify that the display above the D3 tape unit indicates "*****".

3 Verify that there is **no** tape cartridge inserted in the D3 tape unit.
- Remove the tape cartridge in the D3 tape unit (if applicable).

4 Verify that the **Ready** light is illuminated in the second row of the panel near the window of the D3 tape unit where the tape is inserted.
- If the **Ready** light is not illuminated, push the **Ready** button.

5 **Single-click** on the Ingest GUI **Media Ingest** tab.
- The **Media Ingest** screen is displayed.

6 To enter the type of medium **single-click** and **hold** on the option button to the right of the **Media Type** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button.
- The selected type of medium is displayed in the **Media Type** field.

7 To enter the data provider **single-click** and **hold** on the option button to the right of the **Data Provider** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button.
- The selected data provider is displayed in the **Data Provider** field.
  - For example, **ASTERGDS** identifies a data provider.

8 Verify that there is a bar-code label (**Media ID** sticker) properly attached to the tape cartridge containing the data to be ingested.

9 In the **Media ID** field enter:

<media ID>

- **<media ID>** is the identification of the tape specified on the bar-code label attached to the tape cartridge.

10 **Single-click** on the appropriate radio button in the **Data Delivery Record File Location** box.
- Options are: **On Network** and **Embedded in Media**.
  - **On Network** indicates that the PDR file is located on the network.
  - **Embedded in Media** indicates that the PDR file is recorded on the tape.

11 In the **Data Delivery Record File Name** field enter:

<delivery record file name>

- For example, **SDA048C.PDR** is a data delivery record file name.

12 **Single-click** (**once only**) on the **OK** button at the bottom of the GUI.
- The **ECS Ingest** GUI **OK** button is sensitive to being clicked more than once. It is important to click it dead center once only or D3 ingest is likely to fail.

13 Insert the tape cartridge in the D3 tape drive.
- The tape cartridge must be inserted within one minute of clicking on the **OK** button on the **ECS Ingest** GUI.
- The message "Loading" should be displayed on the D3 tape drive unit panel.
- Then the message "Ready" should be displayed on the D3 tape drive unit panel and the "ready" light should blink on and off for a while.
- Avoid clicking the mouse on the **ECS Ingest** GUI while the D3 tape unit is reading the tape.

- Once the extraction command has been executed, the system reads the D3 tape from the header label, then accesses the data needed for Ingest processing.

14 While waiting for completion of data transfer from the tape, monitor request processing by performing the **Monitor/Control Ingest Requests** procedure (Section 16.2.5) using another instance of the **ECS Ingest** GUI.

- During data transfer from tape, the **ECS Ingest** GUI prevents any other function from being selected from the media-ingest instance of the GUI until the transfer has been completed.
- A **Media-Ingest Request Completed** pop-up window is displayed when data transfer from the tape has been completed.
- The messages "Rewinding" then "Unloading" should be displayed on the D3 tape drive unit panel as the D3 tape drive unit rewinds and unloads after the data transfer.
- Upon completion of the process the D3 tape automatically rewinds and ejects itself from the tape drive.

15 Remove the tape cartridge from the D3 tape drive.

16 **Single-click** on the **OK** button on the **Media-Ingest Request Completed** pop-up window associated with the **ECS Ingest** GUI.

- The **Media-Ingest Request Completed** pop-up window is dismissed.

17 To exit from the **ECS Ingest** GUI execute the following menu path:

File → **Exit**

Table 16.3-4. Perform Media Ingest from D3 Tape - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	Launch an additional instance of the **ECS Ingest** GUI	Use procedure in Section 16.2.2
2	Verify that the display indicates "*****" (D3 tape unit)	
3	Remove tape cartridge from the D3 tape unit (if applicable)	**pull**
4	**Ready** button (D3 tape unit) (if necessary)	**push**
5	**Media Ingest** tab (**ECS Ingest** GUI)	**single-click**
6	**<media type>** (**Media Type** option button)	**single-click**
7	**<data provider>** (**Data Provider** option button)	**single-click**
8	Attach bar-code label to the tape cartridge (if necessary)	**attach**

Table 16.3-4. Perform Media Ingest from D3 Tape - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take

9	**<media ID>** [**Media ID** field]	**enter text**
10	Either **On Network** or **Embedded in Media** radio button (as applicable)	**single-click**
11	**<delivery record file name>** (**Data Delivery Record File Name** field)	**enter text**
12	**OK** button	**single-click**
13	Insert the tape cartridge in the D3 tape drive	**push**
14	Monitor request processing while waiting for completion of data transfer	Use procedure in Section 16.2.5
15	Remove tape cartridge from D3 tape drive	**pull**
16	**OK** button (**Media-Ingest Request Completed** pop-up window)	**single-click**
17	**File** → **Exit** (when applicable)	**single-click**

16.3.4 Load a DTF-2 Drive

A DTF-2 drive supports the reading of data from several types of cassettes, including (but not limited to) cassettes of the following types:

- DTF-2 L [large] cassette.
- DTF-2 S [small] cassette.
- DTF-1 L [large] cassette.
- DTF-1 S [small] cassette.

The procedure for loading a DTF-2 drive applies to ingest from DTF-2 cassettes (although it should work for DTF-1 cassettes as well). It involves the use of the **Storage Management Control** GUI when loading a DTF-2 drive.

Table 16.3-5 presents (in a condensed format) the steps required to load a DTR-2 drive. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Ensure that the PDR (PMPDR) name has been written down so it will be available to be entered on the **ECS Ingest** GUI when performing media ingest from DTF-2 tape.

- The PDR (PMPDR) name should be specified on the label attached to the Sony DTF tape cartridge or included in accompanying documentation.
- If the PDR (PMPDR) name is not specified on the label attached to the Sony DTF tape cartridge or included in accompanying documentation, ask a System Administrator to read the file name from the tape.

2 Ensure that the media ID has been written down so it will be available to be entered on the **Storage Management Control** GUI and **ECS Ingest** GUI.
- The media ID should be specified on the label attached to the Sony DTF tape cartridge.
- If the media ID is not specified on the label attached to the Sony DTF tape cartridge, invent a unique ID for the tape.

3 Verify that **No Tape 0H** is indicated on the DTF tape drive's display window.
- If **No Tape 0H** is not indicated on the DTF tape drive's display window, wait until the ongoing operation (if any) has terminated, then push the **UNLOAD** button on the front of the DTF tape drive and remove the tape from the drive after it has completed the unloading process.

4 Insert the Sony DTF tape containing the granules to be ingested into the cassette slot of the DTF tape drive.

5 Wait for **Loaded [00]** to be indicated on the DTF tape drive's display window.

6 Launch the **Storage Management Control** GUI (refer to Section 16.2.3).
- The **Storage Management Control** GUI is displayed.

7 **Single-click** on the **Resource Mngmnt** tab on the **Storage Management Control** GUI.
- The **Storage Management Control** GUI **Resource Mngmnt** tab is displayed.

8 **Single-click** and **hold** the **Media Type** option button to display a menu of media, **move** the mouse cursor to the appropriate type of medium (highlighting it), then **release** the mouse button.
- The selected type of medium (e.g., DTF) is displayed on the **Media Type** option button.
- The relevant server(s) is (are) displayed in the **Media Type** window below the **Media Type** option button.
- For each server displayed in the window below the **Media Type** option button the **Server ID** and **Status** are shown.

9 **Single-click** on the line corresponding to the relevant server in the **Media Type** window.
- The selected server (e.g., EcDsStDTFServerNONE) is highlighted.

10 **Single-click** on the **Manage Hardware** button on the **Resource Mngmnt** tab.
- The **Manage Drives** window is displayed.
- The available drive(s) is (are) listed in the drive information area of the **Manage Drives** window.
- The drive(s) listed in the drive information area of the **Manage Drives** window is (are) described in the following fields: **Drive Name**, **Access Mode**, **Media ID**, **Online Status**, **Loaded Status**, **Allocated Status**.

11 **Single-click** on the line (in the drive information window) corresponding to the drive to be loaded.

- The drive to be loaded is highlighted.
- The **Select All** button below the drive information window can be selected if all listed drives are to be loaded.

12 Verify that the **Media ID Assignment** button on the **Manage Drives** window is set at the **Manual** option.

- If necessary, **single-click** and **hold** the **Media ID Assignment** button on the **Manage Drives** window to display a menu of media assignment options, **move** the mouse cursor to the **Manual** option (highlighting it), then **release** the mouse button.

13 **Single-click** and **hold** the **Media Operations** button to display a menu of media operations, **move** the mouse cursor to the **Load Media** option (highlighting it), then **release** the mouse button.

- A drive management **Load Media** window is displayed.

14 In the **Media ID** field of the **Load Media** window enter:

<media ID>

- **<media ID>** (e.g., DTF1) is the identification of the tape specified on the label attached to the tape cartridge.
- When typing media IDs, be sure to press the **Return/Enter** key after typing the ID in the **Media ID** field.
  - The media ID is displayed in the media window.

15 **Single-click** on the appropriate button from the following selections:

- **OK** – to save the media ID and dismiss the media window.
  - The media window is dismissed.
  - The media ID is displayed in the **Media ID** column of the drive information area of the **Manage Drives** window.
  - **Online** should be displayed in the **Online Status** column of the drive information area of the **Manage Drives** window. However, if **Offline** is displayed in the **Online Status** column of the drive information area of the **Manage Drives** window, perform Steps 16 and 17.
  - **Loaded** is displayed in the **Loaded Status** column of the drive information area of the **Manage Drives** window.
- **Cancel** – to dismiss the media window without saving the media ID.
  - The media window is dismissed.
  - The media ID information in the drive information area of the **Manage Drives** window is unchanged.

16 If **Offline** is displayed in the **Online Status** column of the drive information area of the **Manage Drives** window, first **single-click** on the line in the drive information window corresponding to the drive being loaded.

17 If **Offline** is displayed in the **Online Status** column of the drive information area of the **Manage Drives** window, **single-click** and **hold** the **Online Status** button, **move** the mouse cursor to the **Online** option (highlighting it), then **release** the mouse button.

NOTE: It may be desirable (but it is not essential) to leave the **Manage Drives** window open while performing the procedures to **Perform Media Ingest from DTF-2 Tape** and **Unload a DTF-2 Drive** (Sections 16.3.5 and 16.3.6) because the window is used when unloading the drive.

18 To close the **Manage Drives** window **single-click** on the **Close** button at the bottom of the window.

- The **Manage Drives** window is dismissed.

19 If it is necessary to exit from the **Storage Management Control** GUI, execute the following menu path:

File → Exit

Table 16.3-5. Load a DTF-2 Drive - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	Ensure that the PDR (PMPDR) name has been written down	**write**
2	Ensure that the media ID has been written down	**write**
3	Verify that the display indicates **No Tape 0H** (DTF tape drive)	**observe**
4	Insert the Sony DTF tape into the cassette slot	**push**
5	Wait for the display to indicate **Loaded [00]** (DTF tape drive)	**wait**
6	Launch the **Storage Management Control** GUI	Use procedure in Section 16.2.3
7	**Resource Mngmnt** tab (**Storage Management Control** GUI)	**single-click**
8	**<media type>** (**Media Type** option button)	**single-click**
9	**<server>** (for device to be loaded) (**Media Type** window)	**single-click**
10	**Manage Hardware** button	**single-click**
11	**<drive>** (drive information window)	**single-click**
12	**Manual** (**Media ID Assignment** button)	**single-click**

Table 16.3-5. Load a DTF-2 Drive - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take
13	**Load Media** (**Media Operations** button)	**single-click**

14	**<media ID>** (for tape cartridge to be loaded)	**enter text, press Enter**
15	**OK** button	**single-click**

16.3.5 Perform Media Ingest from DTF-2 Tape

The DAAC Ingest Technician may have to ingest data from a DTF-2 tape utilizing the Ingest GUI and a Sony DTF-2 drive.

Table 16.3-6 presents (in a condensed format) the steps required to perform media ingest from DTF-2 tape. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Load the tape containing the data to be ingested into a DTF-2 drive by performing the **Load a DTF-2 Drive** procedure (Section 16.3.4).

2 Launch an additional instance of the **ECS Ingest** GUI (refer to Section 16.2.2).
- The **ECS Ingest** GUI is displayed.
- During data transfer from tape, the instance of the **ECS Ingest** GUI being used for media ingest prevents any other function from being selected by that instance of the GUI until the transfer has been completed.

3 **Single-click** on the **ECS Ingest** GUI **Media Ingest** tab.
- The **Media Ingest** screen is displayed.

4 To enter the type of medium (i.e., **DTF Tape**) **single-click** and **hold** on the option button to the right of the **Media Type** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button.
- The selected type of medium is displayed in the **Media Type** field.

5 To enter the data provider **single-click** and **hold** on the option button to the right of the **Data Provider** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button.
- The selected data provider is displayed in the **Data Provider** field.
  - For example, **ASTERGDS** identifies a data provider.

6 In the **Media ID** field enter:

<media ID>

- **<media ID>** is the identification of the tape.
- The media ID must be same as the media ID entered on the **Storage Management Control** GUI when performing the procedure to **Load a DTF-2 Drive** (Section 16.3.4).

7 **Single-click** on the appropriate radio button in the **Data Delivery Record File Location** box.

- Options are: **On Network** and **Embedded in Media**.
  - **On Network** indicates that the PDR file is located on the network.
  - **Embedded in Media** indicates that the PDR file is recorded on the tape.

8 In the **Data Delivery Record File Name** field enter:

<delivery record file name>

- For example, **SDA048C.PDR** is a data delivery record file name.

9 **Single-click** on the **OK** button at the bottom of the GUI.

- Data transfer is initiated.

10 While waiting for completion of data transfer from the tape, monitor request processing by performing the **Monitor/Control Ingest Requests** procedure (Section 16.2.5) using another instance of the **ECS Ingest** GUI.

- During data transfer from tape, the **ECS Ingest** GUI prevents any other function from being selected from the media-ingest instance of the GUI until the transfer has been completed.
- A **Media-Ingest Request Completed** pop-up window is displayed when data transfer from the tape has been completed.

11 **Single-click** on the **OK** button on the **Media-Ingest Request Completed** pop-up window associated with the **ECS Ingest** GUI.

- The **Media-Ingest Request Completed** pop-up window is dismissed.

12 Unload the tape from the DTF-2 drive as described in the procedure to **Unload a DTF-2 Drive** (Section 16.3.6).

13 To exit from the **ECS Ingest** GUI execute the following menu path:

File → Exit

Table 16.3-6. Perform Media Ingest from DTF-2 Tape - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	Load the tape into a DTF-2 drive	Use procedure in Section 16.3.4
2	Launch an additional instance of the **ECS Ingest** GUI	Use procedure in Section 16.2.2
3	**Media Ingest** tab (**ECS Ingest** GUI)	**single-click**
4	**<media type>** (**Media Type** option button)	**single-click**
5	**<data provider>** (**Data Provider** option button)	**single-click**
6	**<media ID>** [**Media ID** field]	**enter text**
7	Either **On Network** or **Embedded in Media** radio button (as applicable)	**single-click**
8	**<delivery record file name>** (**Data Delivery Record File Name** field)	**enter text**
9	**OK** button	**single-click**
10	Monitor request processing while waiting for completion of data transfer	Use procedure in Section 16.2.5
11	**OK** button (**Media-Ingest Request Completed** pop-up window)	**single-click**
12	Unload the tape from the DTF-2 drive	Use procedure in Section 16.3.6
13	**File** → **Exit** (when applicable)	**single-click**

16.3.6 Unload a DTF-2 Drive

The procedure that follows involves the use of the **Storage Management Control** GUI when unloading a DTF-2 drive.

Table 16.3-7 presents (in a condensed format) the steps required to unload a DTR-2 drive. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Push the **UNLOAD** button on the front of the DTF tape drive.
- The tape goes through an unloading process.
- At the end of the unloading process the tape is ejected from the drive.

2 After it has completed the unloading process, remove the DTF-2 tape cartridge from the tape drive cassette slot.

3 If an instance of the **Storage Management Control** GUI is not currently running, launch the GUI (refer to Section 16.2.3).
- The **Storage Management Control** GUI **Storage Config.** tab is displayed.

4 **Single-click** on the **Resource Mngmnt** tab on the **Storage Management Control** GUI.
- The **Storage Management Control** GUI **Resource Mngmnt** tab is displayed.

5 **Single-click** and **hold** the **Media Type** option button to display a menu of media, **move** the mouse cursor to the appropriate type of medium (highlighting it), then **release** the mouse button.
- The selected type of medium (e.g., DTF) is displayed on the **Media Type** option button.
- The relevant server(s) is (are) displayed in the **Media Type** window below the **Media Type** option button.
- For each server displayed in the window below the **Media Type** option button the **Server ID** and **Status** are shown.

6 **Single-click** on the line corresponding to the relevant server in the **Media Type** window.
- The selected server (e.g., EcDsStDTFServerNONE) is highlighted.

7 **Single-click** on the **Manage Hardware** button on the **Resource Mngmnt** tab.
- The **Manage Drives** window is displayed.
- The available drive(s) is (are) listed in the drive information area of the **Manage Drives** window.
- The drive(s) listed in the drive information area of the **Manage Drives** window is (are) described in the following fields: **Drive Name**, **Access Mode**, **Media ID**, **Online Status**, **Loaded Status**, **Allocated Status**.

8 **Single-click** on the line (in the drive information window) corresponding to the drive to be unloaded.
- The drive to be unloaded is highlighted.
- The **Select All** button below the drive information window can be selected if all listed drives are to be unloaded.

9 **Single-click** and **hold** the **Media Operations** button to display a menu of media operations, **move** the mouse cursor to the **Unload Media** option (highlighting it), then **release** the mouse button.
- A drive management **Unload Media** window is displayed.

10 **Single-click** on the line in the **Unload Media** window corresponding to the tape to be unloaded.
- The line in the **Unload Media** window corresponding to the tape to be unloaded is highlighted.

11 **Single-click** on the appropriate button from the following selections:
- **OK** – to remove the media ID and dismiss the media window.
  - The media window is dismissed.

  - The media ID is removed from the **Media ID** column of the drive information area of the **Manage Drives** window.
  - **Offline** should be displayed in the **Online Status** column and **Empty** should be displayed in the **Loaded Status** of the drive information area of the **Manage Drives** window. However, if **Online** is displayed in the **Online Status** column or **Loaded** is displayed in the **Loaded Status** of the drive information area of the **Manage Drives** window, perform Steps 12 and 13.
- **Cancel** – to dismiss the media window without removing the media ID.
  - The media window is dismissed.
  - The media ID information in the drive information area of the **Manage Drives** window is unchanged.

12 If **Loaded** is displayed in the affected drive's **Loaded Status** column or **Online** is displayed in the affected drive's **Online Status** column of the **Manage Drives** window, first **single-click** on the **Close** button at the bottom of the window.

- The **Manage Drives** window is dismissed.

13 If **Loaded** was displayed in the affected drive's **Loaded Status** column or **Online** was displayed in the affected drive's **Online Status** column of the **Manage Drives** window, **single-click** on the **Manage Hardware** button on the **Resource Mngmnt** tab.

- The **Manage Drives** window is displayed.
- **Empty** should be displayed in the affected drive's **Loaded Status** column and **Offline** should be displayed in the affected drive's **Online Status** column of the **Manage Drives** window.
  - If the conditions are as they should be, go to Step 17.
  - If **Loaded** is displayed in the **Loaded Status** column or **Online** is displayed in the **Online Status** column of the **Manage Drives** window, perform Steps 14 through 16 (as necessary).

14 If **Loaded** is displayed in the affected drive's **Loaded Status** column or **Online** is displayed in the affected drive's **Online Status** column of the **Manage Drives** window, first **single-click** on the line in the drive information window corresponding to the drive that was unloaded.

- The line (in the drive information window) corresponding to the drive that was unloaded is highlighted.

15 If **Loaded** is displayed in the affected drive's **Loaded Status** column of the **Manage Drives** window, **single-click** and **hold** the **Loaded Status** button, **move** the mouse cursor to the **Empty** option (highlighting it), then **release** the mouse button.

- **Empty** is displayed in the **Loaded Status** column of the **Manage Drives** window.

16 If **Online** is displayed in the affected drive's **Online Status** column of the **Manage Drives** window, **single-click** and **hold** the **Online Status** button, **move** the mouse cursor to the **Offline** option (highlighting it), then **release** the mouse button.

- **Offline** is displayed in the **Online Status** column of the **Manage Drives** window.

17 To close the **Manage Drives** window **single-click** on the **Close** button at the bottom of the window.

- The **Manage Drives** window is dismissed.

18 To exit from the **Storage Management Control** GUI, execute the following menu path:

File → **Exit**

Table 16.3-7. Unload a DTF-2 Drive - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	**UNLOAD** button (DTF tape drive)	**push**
2	Remove DTF-2 tape cartridge from tape drive	**pull**
3	Launch the **Storage Management Control** GUI (if not already running)	Use procedure in Section 16.2.3
4	**Resource Mngmnt** tab (**Storage Management Control** GUI)	**single-click**
5	**<media type>** (**Media Type** option button)	**single-click**
6	**<server>** (for device to be unloaded) (**Media Type** window)	**single-click**
7	**Manage Hardware** button	**single-click**
8	**<drive>** (drive information window)	**single-click**
9	**Unload Media** (**Media Operations** button)	**single-click**
10	**<media ID>** (for tape cartridge to be unloaded)	**single-click**
11	**OK** button	**single-click**
12	**Close** button (**Manage Drives** window)	**single-click**
13	**File** → **Exit** (when applicable)	**single-click**

16.4 Performing Scanning Operations

Scanning operations include scanning documents to create files in a graphics format and retrieving the files when necessary. Table 16.4-1, below, provides an Activity Checklist for performing scanning operations.

Table 16.4-1. Performing Scanning Operations - Activity Checklist

Order	Role	Task	Section	Complete?
1	Ingest Technician	Scan Documents	(P) 16.4.1	
2	Ingest Technician	Gain Access to Scanned Documents	(P) 16.4.2	

16.4.1 Scan Documents

The procedure for scanning documents describes the steps involved in operating the HP ScanJet scanner and creating a graphics file in Tag(ged) Image File Format (TIFF). The software package that supports scanning is TexBridge Pro 96. The software allows scanning of documents that include both text and tables.

The procedure for scanning documents starts with the assumptions that the Ingest Technician has logged in to Windows 95 on the applicable personal computer (PC) and the scanner power is on. Table 16.4-2 presents (in a condensed format) the steps required to scan documents. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 To access the TexBridge scanning software execute the following menu path (from the Windows 95 menu bar):

Start → Programs → TexBridge Pro 96 → TexBridge Pro 96

2 When the **TexBridge Pro 96** window appears, ensure that the following five (5) options are listed on the toolbar as follows:

Page Quality / Page Orientation / Original Document Layout / Document Recomposition / Brightness

Auto	Auto	Auto	Recompose All	Auto

- In other words, the software parameters should be set up as follows:
  - Page Quality: Auto.
  - Page Orientation: Auto.
  - Original Document Layout: Auto.
  - Document Recomposition: Recompose All.
  - Brightness: Auto.

3 **Single-click** on the **Read from Scanner** icon.

- **Read from Scanner** is the 4th icon from the left of the window.
- An alternative is to execute the following menu path (from the pull-down menu):

  File → Read Image from Scanner

4 **Single-click** on the **Save Image Defer OCR** icon.

- **Save Image Defer OCR** is the 8th icon from the left of the window.

5 Set the green lever on the on the HP ScanJet at the vertical position.

6 Set the stack of documents with the side to be scanned facing up on the feed tray of the HP ScanJet.

7 Rotate the green lever on the on the HP ScanJet clockwise.

8 **Single-click** on the **Go** icon to start the scanning process.

- An alternative is to execute the following menu path (from the pull-down menu):

  File → Start/Continue Processing

- An **Add More Pages** window is displayed when the document has been scanned.
- The **Add More Pages** window lists the following options.

  Add more pages to the scanner and click continue
  Or turn pages over in the scanner and click Flip and continue
  Or, click End if you are done.

9 **Single-click** on the appropriate button from the following selections:

- **Continue** – if additional pages need to be scanned.
  - Return to Step 5.
- **Flip and continue** – if the pages in the scanner need to be flipped over to scan the backs of the sheets.
  - Turn the stack of pages over and return to Step 5
- **End** - if scanning has been completed.
  - A **Save Page Image As** window is displayed.
  - Go to Step 10.

10 In the **File name:** field of the **Save Page Image As** window enter:

<file name>

11 Verify that **TIFF CCITT-3 (*.TIF)** is displayed in the **Save as type:** field.

12 **Single-click** on the **OK** button to save the file.

13 To exit from the TexBridge scanning software execute the following menu path:
File → Exit

Table 16.4-2. Scan Documents - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	**Start → Programs → TexBridge Pro 96 → TexBridge Pro 96**	**single-click**
2	Ensure that the software parameters (on the toolbar) are set as follows: Page Quality: Auto Page Orientation: Auto Original Document Layout: Auto Document Recomposition: Recompose All Brightness: Auto	**single-click**
3	**Read from Scanner** icon	**single-click**
4	**Save Image Defer OCR** icon	**single-click**
5	vertical position (green lever on the on the HP ScanJet)	**set lever**
6	face up (HP ScanJet feed tray)	**stack documents**
7	clockwise direction (green lever on the on the HP ScanJet)	**rotate**
8	**Go** icon (**TexBridge Pro 96** window on PC)	**single-click**
9	Either **Continue**, **Flip and continue**, or **End** button (as applicable)	**single-click**
10	**<file name>** (**File name:** field of the **Save Page Image As** window)	**enter text**
11	**TIFF CCITT-3 (*.TIF)** (**Save as type:** field) (if necessary)	**single-click**
12	**OK** button	**single-click**
13	**File → Exit** (when applicable)	**single-click**

16.4.2 Gain Access to Scanned Documents

After a document has been scanned, it should be checked to ensure that it has been properly scanned and saved. The procedure for gaining access to scanned documents starts with the assumption that the Ingest Technician has logged in to Windows 95 on the applicable personal computer (PC). Table 16.4-3 presents (in a condensed format) the steps required to gain access to scanned documents. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 To access the TexBridge scanning software execute the following menu path (from the Windows 95 menu bar):

Start (Programs (TexBridge Pro 96 (TexBridge Pro 96

2 **Single-click** on the **Read from File** icon.

- An alternative is to execute the following menu path (from the pull-down menu):

  File (Read Image from File

3 **Single-click** on the **Preview Image** icon.

- An **Open** window is displayed with a list of files.

4 **Double-click** on the name of the desired file.

- An alternative is to **single-click** on the name of the desired file then **single-click** on the **Open** button.
- The image of the scanned document is displayed.

5 Observe the image of the scanned document.

6 To adjust the image (if desired) **single-click** on the **Zoom In** icon.

- An alternative is to execute the following menu path (from the pull-down menu):

  View → Zoom In

7 To exit from the TexBridge scanning software execute the following menu path:

File → Exit

Table 16.4-3. Gain Access to Scanned Documents - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	**Start → Programs → TexBridge Pro 96 → TexBridge Pro 96**	**single-click**
2	**Read from File** icon	**single-click**
3	**Preview Image** icon	**single-click**
4	**<file name>**	**double-click**
5	Image of the scanned document	**observe**
6	**Zoom In** icon (as necessary)	**single-click**
7	**File → Exit** (when applicable)	**single-click**

16.5 Tuning Ingest Parameters

The values assigned to system parameters affect the functioning and performance of the system. When certain parameters are modified, the system operates differently. Changes to some other parameters may not appear to affect the system although there may in fact be subtle effects. In any case before system parameters are modified it is essential to understand what will happen to system functioning and performance.

Many system parameters may be subject to control by Configuration Management (CM). When making or requesting a change to system parameters, the CM process at the particular site must be followed (if applicable).

Values are assigned to Ingest parameters in the following databases:

- Configuration Registry database.
- Ingest database.

The Configuration Registry Server provides a single interface (via a Sybase server) for retrieving configuration attribute-value pairs for ECS servers from the Configuration Registry database. When ECS servers are started, they access the Configuration Registry Database to obtain needed configuration parameters.

The Database Administrator has access to a Configuration Registry GUI for viewing and editing configuration data in the database. Therefore, it is necessary to coordinate with the Database Administrator when changes to configuration parameters are needed. Also, as previously mentioned, changes to configuration-controlled parameters are subject to approval through the site CM process.

Default and adjusted values assigned to system parameters vary from site to site. For guidance concerning the assignment of values to parameters included in the Configuration Registry refer to document 910-TDA-022 rev 05, *Custom Code Configuration Parameters for ECS Release 6A.05*. The document is available at http://cmdm.east.hitc.com/baseline/ under "Technical Documents."

The following parameters are examples of parameters in the Configuration Registry database whose values may be modified to enhance system functioning or performance:

- AppLogSize [parameter applies to all servers].
  - Maximum size of the application log (ALOG) file for a particular application.
  - Recommended size varies considerably depending the nature of the application for which the file is being written.
- AppLogLevel [parameter applies to all servers].
  - Level of detail provided in the ALOG file for a particular application.
  - Acceptable values are 0, 1, 2, or 3.
  - A setting of "0" provides the most data.
- DebugLevel [parameter applies to all servers].
  - Level of detail provided in the debug log file for a particular application.
  - Normally acceptable values are 0, 1, 2, or 3.

  - A setting of "0" turns off logging; a setting of “3” provides a significant amount of data.
  - STMGT offers "enhanced" debugging based on bitmaps: Level 7 (the 4 bit) provides detailed database debugging; Level 15 (the 8 bit) frequently dumps the in-memory request queue (in the Request Manager); Both Level 7 and Level 15 quickly create enormous log files.
- INGEST_CONNECTION_POOL_SIZE [EcInPolling, EcInGUI, EcInReqMgr, and EcInGran parameter].
  - Number of database connections. The number varies with the particular program connecting to the database.
  - Single-threaded programs (i.e., EcInGUI, EcInPolling) need one database connection only.
  - The number of database connections required for EcInGran depends on the maximum number of granules that can be processed at a time (as specified in the TotalGranuleThreshold column in the InGranuleServerInfo database table). For a maximum of five granules, two database connections are probably enough.
  - For the EcInReqMgr there should be at least two database connections. During end-to-end (ETE) testing at EDC, EcInReqMgr actually needed only three database connections.
- SAVEONEXIT [EcInReqMgr, EcInGran, and EcInGUI parameter].
  - Set to “true” for debug purposes only. (Set to "false" normally.) When “true,” staging disks do not get cleaned up and the Staging Disk Server needs to be warm-started. For Granule Server, when the SAVEONEXIT parameter is “true,” the local preprocessing disk does not get cleaned up.
- SDSRV_RETRY_INTERVAL [EcInGran parameter].
  - Amount of time in seconds (e.g., 60) that Granule Server waits before retrying a remote procedure call (RPC) to Science Data Server when the previous attempt returned a retryable error.
- SDSRV_RETRY_ATTEMPTS [EcInGran parameter].
  - Number of times (e.g., 60) the Granule Server tries to make an RPC to Science Data Server when a retryable error is returned. If it is set to one (1), then no retries are done.
- ADVERTISE_RETRY_WAIT_TIME [EcInReqMgr parameter].
  - Amount of time in seconds (e.g., 15) that Request Manager waits before retrying to make RPCs to Advertising when the previous attempt returned no Science Data Server URs.
- ADVERTISE_RETRIES [EcInReqMgr parameter].
  - Number of times (e.g., 5) that the Request Manager retries to make RPCs to Advertising when a retryable error is returned. If set to 0, no retries are done.
- ADVERTISING_SYBASE_LIMIT [EcInReqMgr parameter].
  - Number of ESDTs (e.g., 150) sent to Advertising in one request to get the Science Data Server URs. If the value is set to zero, all ESDTs from the Ingest database are sent at once. The parameter needs to be changed only if Advertising comes up against a limitation by Sybase as to how many ESDTs it can handle in one request.

  - If the value is too high, Advertising could core dump.
- SocketLimit [EcInEmailGWServer, EcInAuto, EcInReqMgr, EcInGran parameter].
  - Number of connections (e.g., 200) to a server through the Hubble Space Telescope (HST) sockets middleware.
  - Too low a number misses connections.
  - Too high a number may adversely affect the memory of the server's host.
- PollingTimerInterval [EcInPolling parameter].
  - Amount of time in seconds (e.g., 120) between polling instances. The parameter is specified individually for each applicable data provider. The value varies depending on the rate at which each data provider sends data to EcInPolling.
  - Applies to both categories of polling (i.e., with delivery record and without delivery record).
- CompareFileContentsFlag [EcInPolling parameter].
  - Value is either "yes" or "no". (Usually set to "no".)
  - It should be set to "yes" for any data provider that reuses the same file names for its PDRs (in the case of polling with delivery record) or for its data files (in the case of polling without delivery record) so that EcInPolling checks whether file contents have changed.
  - If set to "yes," EcInPolling processing takes longer.
- PollingDirectoryCount [EcInPolling parameter].
  - Number of directories to be polled by EcInPolling. There must be a corresponding number of PollingDirectory, DataType, HostName, IngestFileType, and MaximumFileSize parameters.
  - Affects polling without delivery record only.
- PollingDirectory or PollingDirectory*X* [EcInPolling parameter].
  - Path of the directory (e.g., /usr/ecs/TS2/CUSTOM/icl/x0icg01/data/pollEDOS) in which EcInPolling looks for new PDRs (polling with delivery record) or new data files (polling without delivery record).
  - Used for setting the directory ID parameter in the PDRs that EcInPolling generates.
  - There can be multiple instances of the parameter for polling without delivery record. For example, if the PollingDirectoryCount is "2," there should be a PollingDirectory1 and a PollingDirectory2.
- HostName or HostName*X* [EcInPolling parameter].
  - Host (e.g., x0icg01) where the associated polling directory resides.
  - Used for setting the node name parameter in the PDRs that EcInPolling generates.
  - There can be multiple instances of the parameter for polling without delivery record. For example, if the PollingDirectoryCount is "2," there should be a HostName1 and a HostName2 (although both may have exactly the same value).

- DataType*X* [EcInPolling parameter].
  - Identifies the data type (e.g., AM1ATTF) associated with the corresponding polling directory.
  - Used for setting the data type parameter in the PDRs that EcInPolling generates.
  - There can be multiple instances of the parameter. For example, if the PollingDirectoryCount is "2," there should be a DataType1 and a DataType2 and they should have different values.
  - Affects polling without delivery record only.
  - The data type set must be a valid data type (in the Ingest database) or ingest will fail.
- IngestFileType*X* [EcInPolling parameter].
  - Identifies the file type (e.g., SCIENCE or DATA) associated with the corresponding polling directory.
  - Used for setting the file type parameter in the PDRs that EcInPolling generates.
  - There can be multiple instances of the parameter. For example, if the PollingDirectoryCount is "2," there should be an IngestFileType1 and an IngestFileType2 (although both may have exactly the same value).
  - Affects polling without delivery record only.
  - The file type set must be a valid file type for the associated data type (in the Ingest database) or ingest will fail.
- MaximumFileSize*X* [EcInPolling parameter].
  - Specifies the maximum file size in bytes (e.g., 1000000) allowed in the corresponding polling directory.
  - Used for setting the file size parameter in the PDRs that EcInPolling generates.
  - There can be multiple instances of the parameter. For example, if the PollingDirectoryCount is "2," there should be a MaximumFileSize1 and a MaximumFileSize2. (Both may have exactly the same value.)
  - Affects polling without delivery record only.
  - If the file size is too small, the staging disk created for ftping the files will not be big enough.

NOTE: When the value assigned to a parameter has been changed and saved in the Configuration Registry, the modified value does not take effect until the affected server has been restarted. For example, if the debug level for the Request Manager log has been changed from “2” to “3” in the Configuration Registry, the modification does not affect the recording of data in the log until after a warm restart of the Request Manager (at which time the server would read the parameters in the Configuration Registry).

Some of the more important tunable parameters in the Ingest Database are described in the sections that follow. There is information concerning additional tunable parameters in the "Tunable Parameters in Databases - Descriptions" section of 910-TDA-022 rev 05, *Custom Code Configuration Parameters for ECS Release 6A.05*. The document is available at http://cmdm.east.hitc.com/baseline/ under “Technical Documents.”

Limits on the Number of Queued Requests and Ingest Volume

There is no way to set the number of queued requests. Limits on Ingest volume are managed through the following database parameters:

- TotalGranuleThreshold in the InGranuleServerInfo table.
- VolumeThreshold in the InGranuleServerInfo table.
- MaximumTotalRequests in the InSystemParameters table.
- MaximumTotalVolume in the InSystemParameters table.

The Request Manager receives requests, breaks them into granules, and queues all the granules. The granule queue is maintained in the Ingest database (InGranuleQueue table) so the queue state of each granule and the Granule Server processing it can be determined should the Request Manager have to be restarted in response to a failure.

If the appropriate Granule Server is not processing the maximum number of granules that it can process at a time (TotalGranuleThreshold), one or more granule(s) is (are) removed from the queue and sent to the Granule Server. The same action occurs if the appropriate Granule Server is not processing the maximum data volume that the Granule Server can process at a time (VolumeThreshold). So the Request Manager uses the TotalGranuleThreshold and VolumeThreshold parameters to control when it sends granules to each Granule Server.

Entries in the InGranuleServerInfo database table must be set manually via interactive structured query language (isql) commands. [Refer to the **Modify System Parameters in the Ingest Database Using ISQL** procedure (Section 16.5.3).] If the TotalGranuleThreshold parameter is changed, the Request Manager and the appropriate Granule Server need to be restarted in order for them to see the change. If the VolumeThreshold parameter is changed, the Request Manager needs to be restarted. It is better to avoid changing either parameter while the Granule Server is in the middle of processing granules.

There is a maximum number of requests and maximum volume that can be processed by Ingest at one time (in contrast to the Granule Server limits mentioned in preceding paragraphs). The corresponding parameters are specified in the MaximumTotalRequests and MaximumTotalVolume columns in the InSystemParameters database table. When a request from one of the clients (e.g., GUI or Polling) would cause one of the parameters to exceed its maximum value, the request fails and is not sent to Request Manager.

Either parameter can be modified using the Ingest GUI **Operator Tools: Modify System Parameters** tab. Refer to the **Modify System Parameters on the Ingest GUI** procedure (Section 16.5.2) for details concerning the steps involved in changing system parameters using the GUI.

Limits on the Number of Requests and Data Volume from a Data Provider

For each data provider there is a maximum number of requests and a maximum data volume. The parameters are specified in the MaximumRequests and VolumeThreshold columns in the InExternalDataProviderInfo database table. When a request from one of the clients (e.g., GUI or Polling) would cause one of the parameters to exceed its maximum value, the request fails and is not sent to Request Manager.

Either parameter can be modified using the Ingest GUI **Operator Tools: Modify External Data Provider/User Information** tab. The value assigned to MaximumRequests may not exceed the value assigned to the MaximumTotalRequests parameter in the InSystemParameters table. The value assigned to VolumeThreshold may not exceed the value assigned to the MaximumTotalVolume parameter in the InSystemParameters table. Refer to the **Modify External Data Provider Information** procedure (Section 16.5.1) for details concerning the steps involved in using the GUI to change parameters related to external data providers.

Other Key Parameters for Ingest

In the InSystemParameters database table there is a parameter called MonitorTimeForCompletedRequest. The parameter specifies the number of minutes after the request has been completed that a request remains in the database tables (i.e., InRequestProcessHeader and InRequestProcessData) that allow it to be displayed on the Ingest Monitor/Control GUI window. After the specified time has elapsed the request information is moved to the database summary tables (i.e., InRequestSummaryHeader and InRequestSummaryData) and can be viewed using the Ingest GUI History Log window.

MonitorTimeForCompletedRequest can be modified using the Ingest GUI **Operator Tools: Modify System Parameters** tab. However, no change to the parameter has any effect until the Ingest Request Manager has been restarted. Refer to the **Modify System Parameters on the Ingest GUI** procedure (Section 16.5.2) for details concerning the steps involved in changing system parameters using the GUI.

In the InSystemParameters table there is a ScreenUpdateInterval parameter. It specifies the number of seconds after which the GUI refreshes. The parameter can be modified using the Ingest GUI **Operator Tools: Modify System Parameters** tab. Refer to the **Modify System Parameters on the Ingest GUI** procedure (Section 16.5.2) for details concerning the steps involved in changing system parameters using the GUI.

In the InSystemParameters table, there are the following two communication-related parameters:

- CommunicationRetryCount.
- CommunicationRetryInterval.

The CommunicationRetryCount specifies a number of times that a user retries a communication. The CommunicationRetryInterval is the time interval in seconds between user communication retries. The default values installed with the database are typically set at five for both parameters.

Either parameter can be modified using the Ingest GUI **Operator Tools: Modify System Parameters** tab. Refer to the **Modify System Parameters on the Ingest GUI** procedure (Section 16.5.2) for details concerning the steps involved in changing system parameters using the GUI.

Number of Granule Servers at a DAAC

Each granule server can process multiple Earth Science Data Types (ESDTs), but each ESDT can be assigned to one granule server only. For example, at EDC two granule servers are configured, one to process Landsat-7 data, the other for processing ASTER data.

In order for a particular ESDT to be processed by a particular granule server the GranuleServerURKey entry for the data type in the InDataTypeTemplate table must be set to the integer representing the appropriate granule server. GranuleServerURKey is the granule server ID that is mapped to a specific granule server name (GranuleServerUR). GranuleServerURKey is the primary key in the InValGranuleServerUR table. The GranuleServerURKey column contains the possible values that can be used in the InGranuleServerInfo and InDataTypeTemplate tables. So each granule server requires an individual row in the InValGranuleServerUR table with values for GranuleServerURKey (e.g., 1, 2, 3) and GranuleServerUR (e.g., EcInGran, EcInGran0, EcInGran1). In addition each granule server requires an individual row in the InGranuleServerInfo table with values for GranuleServerURKey, TotalGranuleThreshold, and VolumeThreshold.

To prevent changing the mapping between GranuleServerURKey and GranuleServerUR values no changes are allowed to the values in the GranuleServerURKey column in either the InValGranuleServerUR or the InGranuleServerInfo table. However, entries can be added to both tables. If a new GranuleServerURKey entry is added to the InValGranuleServerUR table, in order for things to work correctly, a new entry for the GranuleServerURKey needs to be added to the InGranuleServerInfo table and a new granule server needs to be configured in order for the new table entry to be used. Also, if additions are made to the InGranuleServerInfo table, the Request Manager needs to be restarted in order for it to see the changes.

Manual modifications to the InGranuleServerInfo database table , InValGranuleServerUR table, or InDataTypeTemplate table must be made via isql commands. Refer to the **Modify System Parameters in the Ingest Database Using ISQL** procedure (Section 16.5.3).

Table 16.5-1, below, provides an Activity Checklist for tuning ingest parameters in the Ingest database.

Table 16.5-1. Tuning Ingest Parameters in the Ingest Database - Activity Checklist

Order	Role	Task	Section	Complete?
1	Ingest Technician	Modify External Data Provider Information	(P) 16.5.1	
2	Ingest Technician	Modify System Parameters on the Ingest GUI	(P) 16.5.2	
3	Ingest Technician	Modify System Parameters in the Ingest Database Using ISQL	(P) 16.5.3	

16.5.1 Modify External Data Provider Information

The **Operator Tools** tab on the **ECS Ingest** GUI has a **Modify External Data Provider/User Information** subtab that the Ingest Technician uses for modifying data provider thresholds. For example, the external data provider volume threshold and request threshold define the size and number of concurrent requests that are allowed from a data provider. If the either threshold is exceeded, the system notifies the Ingest Technician that the data provider is taking up a significant portion of the ingest processing capacity. Although these thresholds are normally left high so that requests are processed without restriction, there may be a time when it is desirable to lower the thresholds (e.g., to accommodate another data provider's requests). The Ingest Technician might at the same time reduce the priority with which the data provider's requests are to be processed. For example, the Ingest GUI could be used to modify the EDOS precedence in the ingest processing stream as follows:

- Reduce the volume threshold from 20,000 megabytes to 15,000 megabytes.
- Reduce the request threshold from 100 to 75.
- Change the priority from normal to low.

Table 16.5-2 presents (in a condensed format) the steps required to modify external data provider information. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If it is not already being displayed, launch the **ECS Ingest** GUI (refer to Section 16.2.2).
- The **ECS Ingest** GUI is displayed.

2 **Single-click** on the **ECS Ingest** GUI **Operator Tools** tab.
- The **Operator Tool** screen is displayed.

3 **Single-click** on the **Modify External Data Provider/User Information** tab.
- The Modify External Data Provider/User Information screen is displayed.

4 **Single-click** and **hold** on the option button to the right of the **Data Provider** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button.
- An alternative method of designating the data provider is to enter (in the **Data Provider** field):

  <data provider>
- If the information concerning the selected data provider is to be modified on the basis of….
  - **FTP Username**, perform Step 5.
  - **FTP Password**, perform Steps 6 and 7.
  - **Email Address**, perform Step 8.
  - **HTML Password**, perform Steps 9 and 10.
  - **CDS Entry Name**, perform Step 11.
  - **Server Destination UUID**, perform Step 12.
  - **Volume Threshold**, perform Step 13.

- **Request Threshold**, perform Step 14.
- **Priority Level**, perform Step 15.
- **Notify Parameters (ftp node, ftp directory, ftp username,** or **ftp password)**, perform Steps 16 through 22 as appropriate.

- Any or all of the preceding criteria may be modified.

5 To modify the data provider's ftp user name enter (in the **FTP Username** field):

<ftp user name>

- The **Tab** key may be pressed to move the cursor from field to field.

6 To modify the data provider's ftp password enter (in the **FTP Password** field):

<ftp password>

7 To verify the data provider's new ftp password **single-click** on the **OK** button adjacent to the **FTP Password** field.

8 To modify the data provider's e-mail address enter (in the **Email Address** field):

<e-mail address>

9 To modify the data provider's HTML password enter (in the **HTML Password** field):

<HTML password>

10 To verify the data provider's HTML password **single-click** on the **OK** button adjacent to the **HTML password** field.

11 To modify the data provider's CDS entry name enter (in the **CDS Entry Name** field):

<CDS entry name>

12 To modify the data provider's server destination enter (in the **Server Destination UUID** field):

<server destination UUID>

CAUTION

As of Release 6A.XX (6A.05), the thresholds are retrieved from the Ingest database when the Ingest Request Manager comes up (as in previous code). However, the threshold checks are done two different ways - sometimes in memory and sometimes by a database stored procedure. The database stored procedure uses the values in the database. If the Granule Server thresholds are changed in the database while Ingest is running there will be a mismatch

between the values in memory and the values in the database. This could cause an Ingest failure.

13 To modify the data provider's volume threshold enter (in the **Volume Threshold - New:** field):

<volume threshold>

- The *current* value for the volume threshold is printed on the corresponding line for reference purposes.

14 To modify the data provider's request threshold enter (in the **Request Threshold - New:** field):

<request threshold>

- The *current* value for the request threshold is printed on the corresponding line for reference purposes.

15 To modify the data provider's priority level **single-click** and **hold** on the option button to the right of the **Priority Level** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button.

- Options are: EXPRESS, VHIGH, HIGH, NORMAL, LOW.
- An alternative method of changing the priority level is to enter (in the **Priority Level** field):

  <priority>

- The *current* value for priority is printed on the corresponding line for reference purposes.

16 To update any of the data provider's "notify parameters" first **single-click** on the **Update Notify Parameters** button.

- The **Notify Parameters** window is displayed.
- The **Notify Parameters** window provides the Ingest Technician with a means of changing the parameters (e.g., username or password) that the Ingest Subsystem needs in order to effectively notify a data provider of ingest activities.

17 To modify the data provider's "notify ftp node" enter (in the **Notify Ftp Node** field):

<notify ftp node>

18 To modify the data provider's "notify ftp directory" enter (in the **Notify Ftp Directory** field):

<notify ftp directory>

19 To modify the data provider's "notify ftp username" enter (in the **Notify Ftp Username** field):

<notify ftp user name>

20 To modify the data provider's "notify ftp password" enter (in the **Notify Ftp Password** field):

<notify ftp password>

21 To verify the data provider's new "notify ftp password" **single-click** on the **OK** button adjacent to the **Notify FTP Password** field.

22 If the "Notify Parameters" window is being displayed, **single-click** on the appropriate button from the following selections:

- **OK** – to save the "Notify Parameters" and dismiss the **Notify Parameters** window.
  - The **Notify Parameters** window is dismissed.
- **Cancel** – to dismiss the **Notify Parameters** window without saving any changes to the "Notify Parameters."
  - The **Notify Parameters** window is dismissed.

23 To save changes to data provider information **single-click** on the **OK** button at the bottom of the **Operator Tools: Modify External Data Provider/User Information** tab.

- The changes are invoked.

Table 16.5-2. Modify External Data Provider Information - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	Launch the **ECS Ingest** GUI (if necessary)	Use procedure in Section 16.2.2
2	**Operator Tools** tab (**ECS Ingest** GUI)	**single-click**
3	**Modify External Data Provider/User Information** tab	**single-click**
4	**<data provider>** (**Data Provider** field option button)	**single-click**
5	**<ftp user name>** (**FTP Username** field) (if applicable)	**enter text**
6	**<ftp password>** (**FTP Password** field) (if applicable)	**enter text**
7	**OK** button (adjacent to the **FTP Password** field) (if applicable)	**single-click**
8	**<e-mail address>** (**Email Address** field) (if applicable)	**enter text**
9	**<HTML password>** (**HTML Password** field) (if applicable)	**enter text**

Table 16.5-2. Modify External Data Provider Information - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take
10	**OK** button (adjacent to the **HTML password** field) (if applicable)	**single-click**
11	**<CDS entry name>** (**CDS Entry Name** field) (if applicable)	**enter text**
12	**<server destination UUID>** (**Server Destination UUID** field) (if applicable)	**enter text**
13	**<volume threshold>** (**Volume Threshold - New:** field) (if applicable)	**enter text**
14	**<request threshold>** (**Request Threshold - New:** field) (if applicable)	**enter text**
15	**<priority>** (button adjacent to the **Priority Level** field) (if applicable)	**single-click**
16	**Update Notify Parameters** button (if applicable)	**single-click**
17	**<notify ftp node>** (**Notify Ftp Node** field) (if applicable)	**enter text**
18	**<notify ftp directory>** (**Notify Ftp Directory** field) (if applicable)	**enter text**
19	**<notify ftp user name>** (**Notify Ftp Username** field) (if applicable)	**enter text**
20	**<notify ftp password>** (**Notify Ftp Password** field) (if applicable)	**enter text**
21	**OK** button (adjacent to the **Notify FTP Password** field) (if applicable)	**single-click**
22	**OK** button (**Notify Parameters** window) (if applicable)	**single-click**
23	**OK** button (**Operator Tools: Modify External Data Provider/User Information** tab) (if applicable)	**single-click**

16.5.2 Modify System Parameters on the Ingest GUI

The **Operator Tools** tab on the **ECS Ingest** GUI has a **Modify System Parameters** subtab that the Ingest Technician uses for modifying data provider thresholds. The **Modify System Parameters** subtab has the following uses:

- Change the thresholds at which the system notifies the Ingest Technician of the demands on system capacity being made by ingest processing.
- Set certain other system operating and display parameters.

Normally, the thresholds are left high so that processing proceeds without restriction and without excessive notification of its operation. If more frequent or sensitive indications are desired, however (e.g., during troubleshooting), it can be helpful to lower the thresholds. For example, it

may be desirable to reduce the system volume threshold from 25,749 megabytes to 15,000 megabytes, and reduce the system request threshold from 1000 to 500.

The following two system parameters affect communications between external data providers and ECS:

- **Communication retry count**
  - The number of successive times the system tries to establish ingest communications with a data provider before registering a communications failure and moving on to the next ingest request.
  - If there is trouble with communication (or if troubleshooting is being performed), it may be useful to increase the communication retry count until the trouble is resolved.
- **Communication retry interval**
  - The time between successive attempts to establish communication.
  - It may be desirable to reduce the time interval for the same reasons as increasing the communication retry count.

An example of how the Ingest Technician might adjust system parameters when a communication problem is suspected involves increasing the communication retry count from five (5) to nine (9), and reducing the communication retry interval from five (5) minutes to three (3) minutes.

The following two system parameters may be used to set the behavior of the system according to operator preference:

- **Monitor time**
  - The amount of time that information about a completed ingest transaction remains available on the Monitor/Control screen after its completion.
  - During a time when the system is operating normally and ingest activity is heavy, it may be better to set a relatively short interval so excess items are removed from the monitoring display fairly quickly.
  - If information is needed about items that have been removed from the Monitor/Control screen, it can be obtained using the History Log.
- **Screen Update Time**
  - The amount of time between automatic data updates on the Monitor/Control screen.
  - Screen updates require system processing, and this interval is normally left set at no less than five (5) seconds.
  - During troubleshooting, it may be useful to obtain more frequent updates by reducing the time interval.

Table 16.5-3 presents (in a condensed format) the steps required to modify system parameters on the **ECS Ingest** GUI. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If it is not already being displayed, launch the **ECS Ingest** GUI (refer to Section 16.2.2).

- The **ECS Ingest** GUI is displayed.

2 **Single-click** on the **ECS Ingest** GUI **Operator Tools** tab.
- The **Operator Tools** screen is displayed.

3 **Single-click** on the **Modify System Parameters** tab.
- The **Modify System Parameters** screen is displayed.
- If the system parameters to be modified involve….
  - **Volume Threshold**, perform Step 4.
  - **Request Threshold**, perform Step 5.
  - **Communication Retry Count**, perform Step 6.
  - **Communication Retry Interval**, perform Step 7.
  - **Monitor Time**, perform Step 8.
  - **Screen Update Time**, perform Step 9.

CAUTION

As of Release 6A.XX (6A.05), the thresholds are retrieved from the Ingest database when the Ingest Request Manager comes up (as in previous code). However, the threshold checks are done two different ways - sometimes in memory and sometimes by a database stored procedure. The database stored procedure uses the values in the database. If the Granule Server thresholds are changed in the database while Ingest is running there will be a mismatch between the values in memory and the values in the database. This could cause an Ingest failure.

4 To modify the system volume threshold enter (in the **Volume Threshold - New:** field):

<volume threshold>

- The *current* value for the volume threshold is printed on the corresponding line for reference purposes.

5 To modify the system request threshold enter (in the **Request Threshold - New:** field):

<request threshold>

- The *current* value for the request threshold is printed on the corresponding line for reference purposes.

6 To modify the system communication retry count enter (in the **Communication Retry Count - New:** field):

<communication retry count>

- The *current* value for the communication retry count is printed on the corresponding line for reference purposes.

7 To modify the system communication retry interval enter (in the **Communication Retry Interval - New:** field):

<communication retry interval>

- The *current* value for the communication retry interval is printed on the corresponding line for reference purposes.

8 To modify the system monitor time enter (in the **Monitor Time - New:** field):

<monitor time>

- The *current* value for the monitor time is printed on the corresponding line for reference purposes.

9 To modify the system screen update time enter (in the **Screen Update Time - New:** field):

<screen update time>

- The *current* value for the screen update time is printed on the corresponding line for reference purposes.

10 **Single-click** on the **OK** button at the bottom of the **Operator Tools: Modify System Parameters** tab to save the changes to system parameters.

- The changes are invoked.

Table 16.5-3. Modify System Parameters on the Ingest GUI - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	Launch the **ECS Ingest** GUI (if necessary)	Use procedure in Section 16.2.2
2	**Operator Tools** tab (**ECS Ingest** GUI)	**single-click**
3	**Modify System Parameters** tab	**single-click**
4	**<volume threshold>** (**Volume Threshold - New:** field) (if applicable)	**enter text**
5	**<request threshold>** (**Request Threshold - New:** field) (if applicable)	**enter text**
6	**<communication retry count>** (**Communication Retry Count - New:** field) (if applicable)	**enter text**

Table 16.5-3. Modify System Parameters on the Ingest GUI - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take
7	**<communication retry interval>** (**Communication Retry Interval - New:** field) (if applicable)	**enter text**
8	**<monitor time>** (**Monitor Time** field) (if applicable)	**enter text**
9	**<screen update time>** (**Screen Update Time** field) (if applicable)	**enter text**
10	**OK** button (**Operator Tools: Modify System Parameters** tab) (if applicable)	**Single-click**

16.5.3 Modify System Parameters in the Ingest Database Using ISQL

As previously mentioned the effects on system functioning and performance must be considered before modifying system parameters. Depending on circumstances at a particular site it may be necessary to request that the Database Administrator modify parameters in the Ingest database. The procedure that follows is provided to assist Ingest Technicians who have to make the database modifications themselves.

Table 16.5-4 presents (in a condensed format) the steps required to modify system parameters in the ingest database using isql. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Ingest Server host.
- Examples of Ingest Server host names include **e0icg11, g0icg01, l0icg01**.
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the command line prompt enter:

isql –U <user ID> -S <database server>

- **<user ID>** is the database user's identification; e.g., **ingest_role**.
- **<database server>** is the database server; e.g., **x0icg01_srvr**.

3 At the **Password:** prompt enter:

<database password>

- **<database password>** is the password for logging in to the database using the specified **<user ID>**.
- A **1>** prompt is displayed, indicating that a connection has been made with the database.

4 At the **1>** prompt enter:

use <database name>

- The **<database name>** is likely to be one of the following names:
  - **Ingest** [OPS mode].
  - **Ingest_TS1** [TS1 mode].
  - **Ingest_TS2** [TS2 mode].
- A **2>** prompt is displayed.

5 At the **2>** prompt enter:

go

6 At the **1>** prompt enter:

select * from <table name>

- Alternatively, enter:

  select <column name> from <table name>

  - For example:

    1> select TotalGranuleThreshold from InGranuleServerInfo

- Another alternative:

  select <column name1>,<column name2>[,<column name3>,…] from <table name>

  - For example:

    1> select GranuleServerURKey,TotalGranuleThreshold,VolumeThreshold from InGranuleServerInfo

7 At the **2>** prompt enter:

go

- Table contents are displayed.
  - If * was specified, all entries in the table are displayed.
  - If specific column names were entered, the data associated with those columns only are displayed.
- For example, the contents of the **InGranuleServerInfo** table would be displayed if the following isql command were entered:

  1> select * from InGranuleServerInfo

- The listing would include data in the following columns:
  - **GranuleServerURKey.**
  - TotalGranuleThreshold.
  - VolumeThreshold.

8 At the **1>** prompt enter:

update <table name> set <column name 1>=<value 1> where <column name 2>=<value 2>

- For example:

  1> update InGranuleServerInfo set TotalGranuleThreshold=10 where GranuleServerURKey=3

9 At the **2>** prompt enter:

go

10 To start verification of the update at the **1>** prompt enter:

select * from <table name>

- Alternatively, one of the options described in Step 6 can be entered.

11 At the **2>** prompt enter:

go

- Table contents are displayed.
- Specified value should have been updated.

12 To exit from **isql** at the **1>** prompt enter:

quit

- The connection with the database is discontinued.

Table 16.5-4. Modify System Parameters in the Ingest Database Using ISQL - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	UNIX window (Ingest Server)	Use procedure in Section 16.2.1
2	**isql –U <user ID> -S <database server>**	**enter text, press Enter**
3	**<database password>**	**enter text, press Enter**
4	**use <database name>**	**enter text, press Enter**
5	**go**	**enter text, press Enter**
6	**update <table name> set <column name 1>=<value 1> where <column name 2>=<value 2>**	**enter text, press Enter**
7	**go**	**enter text, press Enter**
8	**update <table name> set <column name 1>=<value 1> where <column name 2>=<value 2>**	**enter text, press Enter**
9	**go**	**enter text, press Enter**

Table 16.5-4. Modify System Parameters in the Ingest Database Using ISQL - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take
10	**select * from <table name>**	**enter text, press Enter**
11	**go**	**enter text, press Enter**
12	**quit**	**enter text, press Enter**

16.6 Troubleshooting Ingest Failures

Troubleshooting is a process of identifying the source of problems on the basis of observed trouble symptoms. One common source of problems involves the reliance on messages or data from other subsystems. Like many other operational areas in ECS, Ingest has interfaces with many other subsystems. Consequently, problems with ingest can be traced to either the Ingest Subsystem or one of many other ECS subsystems, including (but not necessarily limited to) those in the following list:

- Data Server Subsystem (DSS).
- Interoperability Subsystem (IOS).
- Communications Subsystem (CSS).
- System Management Subsystem (MSS).

However, unlike many other operational areas in ECS, Ingest has interfaces with external data providers. Consequently, some ingest problems can be traced to mistakes in the delivery records furnished by the data providers or errors in transmission of the data.

Table 16.6-1, below, provides an Activity Checklist for troubleshooting ingest failures.

Table 16.6-1. Troubleshooting Ingest Failures - Activity Checklist (1 of 2)

Order	Role	Task	Section	Complete?
1	Ingest Technician	Troubleshoot a Data Ingest Failure	(P) 16.6.1	
2	Ingest Technician	Check Connections to Hosts	(P) 16.6.1.1	
3	Ingest Technician	Check Log Files	(P) 16.6.1.2	
4	Ingest Technician	Recover from a Data Ingest Failure	(P) 16.6.2	
5	Ingest Technician	Check Ingest Notification Files (Polling with Delivery Record)	(P) 16.6.2.1	
6	Ingest Technician	Recover from a Faulty PDR or Other File Problems (Polling with Delivery Record)	(P) 16.6.2.2	
7	Ingest Technician	Regenerate Failed PDRs	(P) 16.6.2.3	
8	Ingest Technician	Remove (Delete) Generated PDRs	(P) 16.6.2.4	
9	Ingest Technician	Check/Edit a PDR	(P) 16.6.2.5	
10	Ingest Technician	Check PAN Contents	(P) 16.6.2.6	

Table 16.6-1. Troubleshooting Ingest Failures - Activity Checklist (2 of 2)

Order	Role	Task	Section	Complete?
11	Ingest Technician	Check for Memory Problems	(P) 16.6.2.7	
12	Ingest Technician	Check the Polling Directory	(P) 16.6.2.8	
13	Ingest Technician	Check PAN Accessibility	(P) 16.6.2.9	
14	Ingest Technician	Recover from Exceeding the Volume Threshold	(P) 16.6.2.10	
15	Ingest Technician	Recover from Exceeding the Maximum Number of Concurrent Requests	(P) 16.6.2.11	
16	Ingest Technician	Recover from Insufficient Disk Space	(P) 16.6.2.12	
17	Ingest Technician	Recover from Exceeding the Expiration Date/Time Period	(P) 16.6.2.13	
18	Ingest Technician	Recover from File Transfer (ftp) Error	(P) 16.6.2.14	
19	Ingest Technician	Recover from Processing Errors	(P) 16.6.2.15	
20	Ingest Technician	Recover from D3 Ingest Failures	(P) 16.6.2.16	
21	Ingest Technician	Recover from Failure to Store Data	(P) 16.6.3	
22	Ingest Technician	Checking the Request Manager Server Debug Log	(P) 16.6.3.1	

16.6.1 Troubleshoot a Data Ingest Failure

1 If it is not possible to log in to the Operations Workstation or any other host, ask the Operations Controller/System Administrator to verify that the host is “up."

- Examples of Operations Workstation host names include **e0acs03**, **g0acs02**, **l0acs01, n0acs03**.

2 If the GUI (e.g., the **ECS Ingest** GUI or the **Storage Management Control** GUI) is not displayed when the start-up script has been invoked properly, ensure that the DISPLAY variable was set properly.

- For detailed instructions refer to the applicable procedure.
  - **Log in to ECS Hosts** (Section 16.2.1).
  - **Launch the ECS Ingest GUI** (Section 16.2.2).
  - **Launch the Storage Management Control GUI** (Section 16.2.3).

3 If an error message associated with the **ECS Ingest** GUI is received, refer to Table 16.6-2, Ingest Operator GUI User Messages.

- The table is adapted from the corresponding table in 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*).

4 If an error message associated with the **Regenerate Failed PDR Tool** is received, refer to Table 16.6-3. Regenerate Failed PDR Tool User Messages.
- The table is adapted from the corresponding table in 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*).

5 If a message is received indicating a data ingest failure, ensure that it is possible to connect to the necessary hosts and servers.
- For detailed instructions refer to the **Check Connections to Hosts** procedure (Section 16.6.1.1).

6 If a message is received indicating a data ingest failure and if hosts/servers are all "up," refer to the **Recover from a Data Ingest Failure** procedure (Section 16.6.2).

7 If some other type of problem is encountered, check the log files for error messages.
- Examples of log files include EcInReqMgr.ALOG, EcInPolling.ALOG, EcInGran.ALOG, EcInGUI.ALOG.
- Log files are located in the /usr/ecs/<MODE>/CUSTOM/logs directory.
- For detailed instructions refer to the **Check Log Files** procedure (Section 16.6.1.2).

8 If the problem cannot be identified and fixed without help within a reasonable period of time, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.

NOTE: When troubleshooting Ingest problems, ensure that the correct mount/host is being checked. Many types of ingest use "icl" (Ingest Client) staging areas but others may not. Media ingest (e.g., from D3 tape) typically involves staging in a "dip" (Distribution and Ingest Peripherals) area. Polling ingest for data from EDOS usually entails the use of the polling directory as the staging area. Some data are staged directly to working storage ("wks") in the Data Server Subsystem.

Table 16.6-2. Ingest Operator GUI User Messages (1 of 10)

Message Text	Impact	Cause and Corrective Action
Can not obtain Data Delivery Record file.	Without the data delivery record file, media ingest cannot be processed.	1. If the data delivery record (e.g., **sdpf31a.PDR**) is embedded in the medium (recorded on the tape), from any Ingest or Data Server Subsystem host enter: **cd /usr/ecs/<MODE>/CUSTOM/icl/<host>/data/StagingArea/disks** 2. Enter: **ls -al** 3. Ensure that a staging disk has been created to receive the file. 4. If the data delivery record is on a network, check the applicable directory to see if the delivery record is there. 5. If the data delivery record is on a network and the delivery record is in the applicable directory, consult with the Network Administrator to determine whether there is network problem.
Can not obtain data type for selected RequestID.	Unable to display granule level information.	Notify the Database Administrator of the database problem that needs to be corrected.
Can not obtain new request id from database.	Without this information, media ingest cannot be processed.	Notify the Database Administrator of the database problem that needs to be corrected.
Can not obtain selected data provider information.	"Modify External Data Provider/User Information" screen cannot be refreshed with the updated information.	Notify the Database Administrator of the database problem that needs to be corrected.

Table 16.6-2. Ingest Operator GUI User Messages (2 of 10)

Message Text	Impact	Cause and Corrective Action
Can not read the request information file.	Unable to display request/granule text view information in the text browser.	1. Access a terminal window logged in to the Operations Workstation 2. Enter: **cd /usr/ecs/<MODE>/CUSTOM/temp/INS** 3. Enter: **ls -al** • A listing of files, including their permissions is displayed as shown in the following example: **-rw-rw--w- 1 ashelton users 110 Apr 2 11:21 GraphicalViewInfoFile982** **-rw-rw--w- 1 ashelton users 112 Mar 25 15:51 HistSummaryFile10535** **-rw-rw--w- 1 cmops cmops 220 Mar 26 11:47 RequestLevelInfoFile11000** 4. Review the file permissions to determine whether the GUI has permission to read the file to which it is trying to gain access. • In the preceding example "read" access to the RequestLevelInfoFile is restricted to members of the cmops group but virtually any user has "read" access to the other files. 5. Whether or not the GUI has "read" permission for the file, notify the System Administrator of the problem and/or submit a trouble ticket.
Can not retrieve data based on search criteria.	Unable to display History Log information.	Notify the Database Administrator of the database problem that needs to be corrected.
Can not update selected data provider information.	Cannot update InExternalDataProviderInfo table for the specified data provider.	Notify the Database Administrator of the database problem that needs to be corrected.
Can not update the system threshold information.	Cannot update InSystemParameters table with new values.	Notify the Database Administrator of the database problem that needs to be corrected.
Data Delivery Record filename needs to be specified.	Without this information, media ingest cannot be submitted.	1. In the **Data Delivery Record File Name** field enter: **<data delivery record file name>** 2. **Single-click** on the **OK** button at the bottom of the GUI.
Data Delivery Record location needs to be specified.	Without this information, media ingest cannot be submitted.	1. **Single-click** on the appropriate radio button in the **Data Delivery Record File Location** box. • **On Network** button if the PDR file is located on the network. • **Embedded in Media** button if the PDR file is recorded on the tape. 2. **Single-click** on the **OK** button at the bottom of the GUI.

Table 16.6-2. Ingest Operator GUI User Messages (3 of 10)

Message Text	Impact	Cause and Corrective Action
Data not found for search criteria.	Unable to display History Log information.	Select/enter other search criteria. [For detailed instructions refer to the **View the Ingest History Log** procedure (Section 16.2.8).]
Data not found for search criteria.	Unable to display the **Monitor/Control** screen request text view information for the search criteria.	Notify the Database Administrator of the database problem that needs to be corrected.
Data Provider ID needs to be provided.	Without this information, media ingest cannot be submitted.	1. To enter the data provider (e.g., **SDPF**) **single-click** and **hold** on the option button to the right of the **Data Provider** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button. 2. **Single-click** on the **OK** button at the bottom of the GUI.
Data Provider is not authorized for ingest.	Unable to perform Media Ingest for the data provider.	Resolve the issue with the data provider.
Deallocate device failure.	Media ingest cannot be processed.	Notify the System Administrator of the problem and/or submit a trouble ticket.
Destination MUST be host/path (e.g. kodiak/tmp).	Cannot perform file transfer.	1. In the **Transfer Destination** field enter: <**host name>/<path>** • For example, g0drg01/usr/ecs/OPS/CUSTOM/data 2. **Single-click** on the **OK** button at the bottom of the **Operator Tools: File Transfer** tab to execute the file transfer.
Destination MUST be provided.	Cannot perform file transfer.	1. In the **Transfer Destination** field enter: <**host name>/<path>** • For example, g0drg01/usr/ecs/OPS/CUSTOM/data 2. **Single-click** on the **OK** button at the bottom of the **Operator Tools: File Transfer** tab to execute the file transfer.
Detail Level needs to be set.	Unable to display History Log information.	1. **Single-click** on either the **Detailed Report** button or the **Summary Report** button (as appropriate). 2. If the **Summary Report** button was selected in the preceding step, **single-click** on either the **Request level** button or the **Granule level** button (as appropriate). 3. **Single-click** on the **Display** button.

Table 16.6-2. Ingest Operator GUI User Messages (4 of 10)

Message Text	Impact	Cause and Corrective Action
Dismount media failure.	Media ingest cannot be processed.	Notify the System Administrator of the problem and/or submit a trouble ticket.
FTP failed.	File failed the ftp file transfer.	Notify the Network Administrator of the problem.
Invalid input value.	Unable to display History Log information.	Enter a valid input value. [For detailed instructions refer to the **View the Ingest History Log** procedure (Section 16.2.8).]
Invalid Old Password.	Unable to perform password confirmation.	Enter the correct old password. [For detailed instructions refer to the **Modify External Data Provider Information** procedure (Section 16.5.1).]
Invalid Start Time.	Unable to display the History Log information.	Enter a valid start time. [For detailed instructions refer to the **View the Ingest History Log** procedure (Section 16.2.8).]
Invalid Stop Time.	Unable to display the History Log information.	Enter a valid stop time. [For detailed instructions refer to the **View the Ingest History Log** procedure (Section 16.2.8).]
Invalid time interval.	Unable to display the History Log information (e.g., the specified stop time may precede the specified start time).	Enter correct start and stop times. [For detailed instructions refer to the **View the Ingest History Log** procedure (Section 16.2.8).]
Media Ingest Request completed.	N/A	For information only. No action is necessary.
Media Type needs to be set.	Without this information, media ingest cannot be submitted.	1. To enter the type of medium (i.e., **D3 Tape**) **single-click** and **hold** on the option button to the right of the **Media Type** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button. 2. **Single-click** on the **OK** button at the bottom of the GUI.
New password does not match what was originally typed.	Unable to perform password confirmation.	Re-enter the correct new password. [For detailed instructions refer to the **Modify External Data Provider Information** procedure (Section 16.5.1).]
No data matching search criteria.	Unable to display the request text view information for the search criteria.	Notify the Database Administrator of the database problem that needs to be corrected.

Table 16.6-2. Ingest Operator GUI User Messages (5 of 10)

Message Text	Impact	Cause and Corrective Action
Printer name is not specified.	Unable to print the currently displayed information.	Enter a valid printer name.
Priority Level needs to be set.	Unable to change the priority for the selected request.	1. **Single-click** and **hold** the option button to the right of the **Priority** button to display a menu of priorities, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button. 2. To implement the priority change **single-click** on the **OK** button at the bottom of the GUI.
Request Control Status: Success.	N/A	For information only. No action is necessary.
Request Threshold exceeds the system request threshold.	Cannot update InExternalDataProviderInfo table for the specified data provider.	1. **Single-click** on the **Modify System Parameters** tab. 2. Observe the current value for the system request threshold. 3. **Single-click** on the **Modify External Data Provider/User Information** tab. 4. **Single-click** and **hold** on the option button to the right of the **Data Provider** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button. 5. In the **New:** field corresponding to **Request Threshold**, enter **<request threshold>** •Value entered for the new request threshold must be less than the system request threshold specified on the **Modify System Parameters** tab 6. **Single-click** on the **OK** button at the bottom of the **Operator Tools: Modify External Data Provider/User Information** tab to save the changes to data provider information.
RequestID selected is not a valid integer.	Unable to display granule level information.	Notify the Database Administrator of the database problem that needs to be corrected.

Table 16.6-2. Ingest Operator GUI User Messages (6 of 10)

Message Text	Impact	Cause and Corrective Action
Select new file and push the file selection OK button.	Cannot perform file transfer.	1. In the **Files** field **single-click** on the file to be transferred. 2. **Single-click** on the **OK** button in the **Transfer Origin** box. 3. Verify that the file to be transferred (including the correct path to the file) is displayed in the **Selection** field. 4. Verify that the host name/path to which the file is to be transferred is entered in the **Transfer Destination** field. 5. **Single-click** on the **OK** button at the bottom of the **Operator Tools: File Transfer** tab to execute the file transfer.
SMC History File Build Failed.	Unable to build SMC history file.	Notify the Database Administrator of the database problem that needs to be corrected.
Stacker ID needs to be specified.	Without this information, media ingest cannot be submitted.	Not Currently Applicable.
Stacker Slot ID needs to be specified.	Without this information, media ingest cannot be submitted.	Not Currently Applicable.
Unable to allocate a media device.	Without the allocation of the media device, media ingest cannot be processed.	Notify the System Administrator of the problem and/or submit a trouble ticket.
Unable to copy data files to staging disk.	Without the data files, media ingest cannot be processed.	1. From any Ingest or Data Server Subsystem host enter: **cd /usr/ecs/<MODE>/CUSTOM/drp/<host>/data/staging/disks** 2. Enter: **ls -al** 3. Ensure that a staging disk has been created to receive the file. 4. Enter: **df -k .** 5. Verify that there is adequate disk space to receive data files 6. If there is not enough disk space, notify the System Administrator of the problem and/or submit a trouble ticket.

Table 16.6-2. Ingest Operator GUI User Messages (7 of 10)

Message Text	Impact	Cause and Corrective Action
Unable to obtain data provider list.	"Modify External Data Provider/User Information" screen cannot be used to update InExternalDataProviderInfo table.	Notify the Database Administrator of the database problem that needs to be corrected.
Unable to obtain data provider list.	Unable to build the list for Data Provider combo box on History Log screen.	Notify the Database Administrator of the database problem that needs to be corrected.
Unable to obtain data type list.	Unable to build the list for Data Type combo box on History Log screen.	Notify the Database Administrator of the database problem that needs to be corrected.
Unable to obtain final request status list.	Unable to build the list for Final Request Status combo box on History Log screen.	Notify the Database Administrator of the database problem that needs to be corrected.
Unable to obtain the data provider list.	Unable to build the list for Data Provider combo box on Monitor/Control screen.	Notify the Database Administrator of the database problem that needs to be corrected.
Unable to obtain the system information.	"Modify System Parameters" screen cannot be used to update the InSystemParameters table.	Notify the Database Administrator of the database problem that needs to be corrected.
Unable to process request control.	Unable to perform the selected request control.	1. Log in to the Ingest Server host using secure shell. • Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01, n0icg01**. 2. If it is not possible to log in to the Ingest Server host, ask the Operations Controller/System Administrator to verify that the host is "up." 3. Enter: **ps -ef | grep EcInReqMgr** 4. If the server has gone down, notify the Operations Controller/System Administrator to have server brought back up. 5. If both the host and server are "up," refer to the **Recover from a Data Ingest Failure** procedure (Section 16.6.2).

Table 16.6-2. Ingest Operator GUI User Messages (8 of 10)

Message Text	Impact	Cause and Corrective Action
Unable to process the request.	Media ingest cannot be processed.	1. Log in to the Ingest Server host using secure shell. • Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01, n0icg01**. 2. If it is not possible to log in to the Ingest Server host, ask the Operations Controller/System Administrator to verify that the host is "up." 3. Enter: **ps -ef | grep EcInReqMgr** 4. If the server has gone down, notify the Operations Controller/System Administrator to have server brought back up. 5. If both the host and server are "up," refer to the **Recover from a Data Ingest Failure** procedure (Section 16.6.2).
Unable to read the history log.	Unable to display History Log information.	1. Access a terminal window logged in to the Operations Workstation. • Examples of Operations Workstation host names include **e0acs03, g0acs02, l0acs01, n0acs03**. 2. Enter: **cd /usr/ecs/<MODE>/CUSTOM/temp/INS** 3. Enter: **ls -al** • A listing of files, including their permissions is displayed as shown in the following example: **-rw-rw--w- 1 ashelton users 306 Mar 31 13:43 HistDataTypeFile1428** **-rw-rw--w- 1 cmops cmops 110 Apr 2 11:21 HistRequestFile12989** **-rw-rw--w- 1 ashelton users 112 Mar 25 15:51 HistSummaryFile10535** **-rw-rw--w- 1 ashelton users 220 Mar 26 11:47 RequestLevelInfoFile11000** 4. Review the file permissions to determine whether the GUI has permission to read the file to which it is trying to gain access. • In the preceding example "read" access to the HistRequestFile is restricted to members of the cmops group but virtually any user has "read" access to the other files. 5. Whether or not the GUI has "read" permission for the file, notify the System Administrator of the problem and/or submit a trouble ticket.

Table 16.6-2. Ingest Operator GUI User Messages (9 of 10)

Message Text	Impact	Cause and Corrective Action
Unable to request mount media service.	Without the mount, media ingest cannot be processed.	1. Check the 8mm drives to determine whether the drives are loaded (if there are tapes in the drives). 2. If the 8mm drives are loaded, wait until one of the drives completes the current activity and unloads. 3. When one of the 8mm drives becomes unloaded, retry the media ingest. [For detailed instructions refer to the **Unload and Load Stackers** and **Perform Media Ingest from 8mm Tape** procedures (Sections 16.3.1 and 16.3.2).] 4. If there is no tape in either 8mm drive or if neither drive unloads, notify the System Administrator of the problem and/or submit a trouble ticket.
Update is not allowed without password confirmation.	Unable to perform password update.	**Single-click** on the password confirmation **OK** button to perform password confirmation prior to password update. [For detailed instructions refer to the **Modify External Data Provider Information** procedure (Section 16.5.1).]
Value entered is not a valid integer.	Unable to display History Log information.	Enter a valid integer value. [For detailed instructions refer to the **View the Ingest History Log** procedure (Section 16.2.8).]
Value entered is not a valid integer.	Unable to monitor/control the specified request ID.	Enter a valid integer request ID. [For detailed instructions refer to the **View the Ingest History Log** procedure (Section 16.2.8).]
Volume ID is empty.	Without this information, media ingest cannot be submitted.	1. Enter: **<media ID>** (**Media ID** field). 2. **Single-click** on the **OK** button at the bottom of the GUI. [For detailed instructions refer to the **Perform Media Ingest from 8mm Tape** procedure (Section 16.3.2), the **Perform Media Ingest from D3 Tape** procedure (Section 16.3.3) or the **Perform Media Ingest from DTF-2 Tape** procedure (Section 16.3.5).]

Table 16.6-2. Ingest Operator GUI User Messages (10 of 10)

Message Text	Impact	Cause and Corrective Action
Volume Threshold exceeds the system volume threshold.	Cannot update InExternalDataProviderInfo table for the specified data provider.	1. **Single-click** on the **Modify System Parameters** tab. 2. Observe the current value for the system volume threshold. 3. **Single-click** on the **Modify External Data Provider/User Information** tab. 4. **Single-click** and **hold** on the option button to the right of the **Data Provider** field, **move** the mouse cursor to the desired selection (highlighting it), then **release** the mouse button. 5. Enter: **<Volume Threshold>** (**Volume Threshold - New:** field) • Ensure that the value entered for the new volume threshold is less than the system volume threshold specified on the **Modify System Parameters** tab. 6. **Single-click** on the **OK** button at the bottom of the **Operator Tools: Modify External Data Provider/User Information** tab to save the changes to data provider information.

Table 16.6-3. Regenerate Failed PDR Tool User Messages (1 of 3)

Message Text	Impact	Cause and Corrective Action
Error occurred when trying to delete the new PDR file.	The generated PDR file did not get deleted from its creation directory.	If the generated PDR file is still in the directory where the **Regenerate Failed PDR Tool** created it, delete the PDR file. [For detailed instructions refer to the procedure for **Remove (Delete) Generated PDRs** (Section 16.6.2.4).]
InDAN::GetDataType returned an error for granule.	The PDR for this and subsequent granules cannot be generated.	1. Check the log file for error messages. [For detailed instructions refer to the **Check Log Files** procedure (Section 16.6.1.2) 2. When the problem has been corrected, repeat the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).
InDAN::GetFileInfo returned an error for granule.	This and subsequent granules cannot have their PDRs generated.	1. Check the PDR(s) to ensure that file information is set correctly. [For detailed instructions refer to the **Check/Edit a PDR** procedure (Section 16.6.2.5).] 2. Check the log file for error messages. [For detailed instructions refer to the **Check Log Files** procedure (Section 16.6.1.2).] 3. When the problem has been corrected, repeat the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).

Table 16.6-3. Regenerate Failed PDR Tool User Messages (2 of 3)

Message Text	Impact	Cause and Corrective Action
InDAN:: GetGranuleVolume returned an error for granule.	This and subsequent granules cannot have their PDRs generated.	1. Check the PDR(s) to ensure that volumes are set correctly. [For detailed instructions refer to the **Check/Edit a PDR** procedure (Section 16.6.2.5).] 2. Check the log file for error messages. [For detailed instructions refer to the **Check Log Files** procedure (Section 16.6.1.2).] 3. When the problem has been corrected, repeat the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).
InDAN::GetXAREntry returned an error for granule.	This and subsequent granules cannot have their PDRs generated.	1. Check the log file for error messages. [For detailed instructions refer to the **Check Log Files** procedure (Section 16.6.1.2).] 2. When the problem has been corrected, repeat the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).
Number of files is not the same in the PDR and PAN.	The granule PDRs cannot be generated.	Enter a PDR and its corresponding PAN file. [For detailed instructions refer to Steps 5 and 6 in the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).
PAN file is not a long PAN.	The granule PDRs cannot be generated.	Enter a PAN file name which is a long PAN. [For detailed instructions refer to Step 6 in the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).
PAN file is not formatted correctly.	The rest of the granules cannot have their PDRs generated.	1. Check the PAN to ensure that the format is correct. [For detailed instructions refer to the **Check PAN Contents** procedure (Section 16.6.2.6).] 2. When the problem has been corrected, repeat the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).
The creation of the new PDR file failed.	This and subsequent granules cannot have their PDRs generated.	1. Check the log file for error messages. [For detailed instructions refer to the **Check Log Files** procedure (Section 16.6.1.2).] 2. When the problem has been corrected, repeat the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).
Unable to allocate memory for DataTypeList.	The rest of the granules cannot have their PDRs generated.	1. Check the host for memory problems. • Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01, n0icg01**. [For detailed instructions refer to the **Check for Memory Problems** procedure (Section 16.6.2.7).] 2. When the problem has been corrected, repeat the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).
Unable to allocate memory for DataTypeList.FileList.	This and subsequent granules cannot have their PDRs generated.	1. Check the host for memory problems. • Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01, n0icg01**. [For detailed instructions refer to the **Check for Memory Problems** procedure (Section 16.6.2.7).] 2. When the problem has been corrected, repeat the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).

Table 16.6-3. Regenerate Failed PDR Tool User Messages (3 of 3)

Unable to copy the new PDR file into the Polling directory.	The generated PDR file did not get copied to the polling directory.	1. Repeat the **Regenerate Failed PDRs** procedure (Section 16.6.2.3), paying particular attention to accurate typing of the polling directory path. 2. If the Regenerate Failed PDR Tool repeats the same error message, check for the accessibility of the relevant polling directory on the host. [For detailed instructions refer to the **Check the Polling Directory** procedure (Section 16.6.2.8).]
Unable to create all of the PDRs for the failed granules.	Not all of the failed granules had PDRs generated.	1. Observe previous error messages to determine which granule had a problem. 2. Check the log file for error messages. [For detailed instructions refer to the **Check Log Files** procedure (Section 16.6.1.2).] 3. When the problem has been corrected, repeat the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).
Unable to open the PAN file.	The granule PDRs cannot be generated.	1. Repeat the **Regenerate Failed PDRs** procedure (Section 16.6.2.3), paying particular attention to accurate typing of the PAN file name and path. 2. If the Regenerate Failed PDR Tool repeats the same error message, check for the accessibility of the relevant PAN on the host. [For detailed instructions refer to the **Check PAN Accessibility** procedure (Section 16.6.2.9).]
Unable to parse the PDR file.	The PDR file cannot be used to generate granule PDRs.	1. Check the PDR(s) to determine why the Regenerate Failed PDR Tool cannot parse the PDR file. [For detailed instructions refer to the **Check/Edit a PDR** procedure (Section 16.6.2.5).] 2. When the problem has been corrected, repeat the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).

16.6.1.1 Check Connections to Hosts

The procedure to **Check Connections to Hosts/Servers** is a part of the **Troubleshoot a Data Ingest Failure** procedure (Section 16.6.1). Table 16.6-4 presents (in a condensed format) the steps required to check connections to hosts. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Operations Workstation host.

- Examples of Operations Workstation host names include **e0acs03, g0acs02, l0acs01, n0acs03**..
- Most other ECS hosts are acceptable for checking connections.
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the command line prompt enter:

cd /usr/ecs/<MODE>/CUSTOM/utilities

- Change directory to the directory containing the utility scripts.

3 At the command line prompt enter:

EcCsIdPingServers <MODE>

- The following type of response is displayed (only a few representative lines are shown):

  /usr/ecs/TS2/CUSTOM/bin/CSS/Sweeper -nsh x0icg01 -nsp 18202
  FoSwSweeper application started...
  We made a connection with EntryId =x0ins01:38709:23057 --- EcSrTransportSubServer
  We made a connection with EntryId =x0ins01:38712:23057 --- EcSrTransportSubEventServer
  We made a connection with EntryId =x0acs03:33379:17033 --- DsShQuitIDL
  We made a connection with EntryId =x0wkg01:11959:41838305 --- EcDsHdfEosServer_3_G3
  […]

4 Observe the results displayed on the screen to determine whether connections can be made with the necessary hosts and servers.

- The necessary hosts and servers are listed in Table 16.6-5, Hosts, Servers, Clients and Other Software Relevant to Ingest.

5 If it is not possible to connect to any needed host(s)/server(s), notify the Operations Controller/System Administrator to check the hosts/servers and bring them back up if necessary.

6 Return to the procedure that recommended checking connections to hosts.

Table 16.6-4. Check Connections to Hosts - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	UNIX window (Operations Workstation)	**single-click** or use procedure in Section 16.2.1
2	**cd /usr/ecs/<MODE>/CUSTOM/utilities**	**enter text, press Enter**
3	**EcCsIdPingServers <MODE>**	**enter text, press Enter**
4	Identify hosts and servers with which connections cannot be made	**read text**

Table 16.6-4. Check Connections to Hosts - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take
5	Notify the Operations Controller/System Administrator to bring hosts/servers back up (if applicable)	**contact Operations Controller**
6	Return to the procedure that recommended checking connections to hosts	

Table 16.6-5. Hosts, Servers, Clients and Other Software Relevant to Ingest (1 of 2)

HOST	SERVER/CLIENT/OTHER SOFTWARE
Ingest Server (e.g., x0icg01)	Name Server (EcCsIdNameServer) Registry Server (EcCsRegistry) FTP Server (EcDsStFtpServer) Staging Disk Server (EcDsStStagingDiskServer) Automated Network Ingest Interface (EcInAuto) Ingest Granule Server (EcInGran) Automated Polling Ingest Client Interface (EcInPolling) Ingest Request Manager (EcInReqMgr)
Distribution Server (e.g., x0dis02)	Distribution Server (EcDsDistributionServer) 8mm Server (EcDsSt8MMServer) D3 Server (EcDsStD3Server) DTF-2 Server (EcDsStDTFServer) Staging Disk Server (EcDsStStagingDiskServer) Storage Management Control GUI (EcDsStmgtGui) Storage Management Request Manager (EcDsStRequestManagerServer)
Working Storage (e.g., x0wkg01)	HDF EOS Server (EcDsHdfEosServer) Archive Server (EcDsStArchiveServer) Cache Manager Server (EcDsStCacheManagerServer) FTP Server (EcDsStFtpServer) Staging Disk Server (EcDsStStagingDiskServer)
Operations Workstation (e.g., x0acs01)	Ingest GUI (EcInGUI)
SDSRV Server (e.g., x0acs03)	Science Data Server (EcDsScienceDataServer)

Table 16.6-5. Hosts, Servers, Clients and Other Software Relevant to Ingest (2 of 2)

HOST	SERVER/CLIENT/OTHER SOFTWARE
Access/Process Coordinators (APC) Server (e.g., x0acg01)	Archive Server (EcDsStArchiveServer) Cache Manager Server (EcDsStCacheManagerServer) FTP Server (EcDsStFtpServer) Staging Disk Server (EcDsStStagingDiskServer) Pull Monitor Server (EcDsStPullMonitorServer) Automated Polling Ingest Client Interface (EcInPolling)
FSMS Server (e.g., x0drg01)	Archive Server (EcDsStArchiveServer) Cache Manager Server (EcDsStCacheManagerServer) FTP Server (EcDsStFtpServer) Staging Disk Server (EcDsStStagingDiskServer)
Interface Server 01 (e.g., x0ins02)	Advertising Server (EcIoAdServer) Data Dictionary (EcDmDictServer)
Interface Server 02 (e.g., x0ins01)	Ingest E-Mail Parser (EcInEmailGWServer) Subscription Server (EcSbSubServer) Event Server (EcSbEventServer)

16.6.1.2 Check Log Files

The procedure to **Check Log Files** is a part of the **Troubleshoot a Data Ingest Failure** procedure (Section 16.6.1). Checking log files can provide indications of the following types of problems (among others):

- Communication problems.
- Database problems.
- Lack of disk space.

Table 16.6-6 presents (in a condensed format) the steps required to check log files. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the appropriate host.

- Operations Workstation (e.g., **e0acs03, g0acs02, l0acs01, n0acs03**) has the following ingest log files (among others):
  - EcInGUI.ALOG.
- Ingest Server (e.g., **e0icg11, g0icg01, l0icg01, n0icg01**) host has the following ingest log files (among others):
  - EcInReqMgr.ALOG.
  - EcInPolling.ALOG.

  - EcInGran.ALOG.
  - EcInRegenFailedPDR.log.
- Ingest Server (e.g., **e0icg11, g0icg01, l0icg01, n0icg01**) host has the following storage mangement log files (among others):
  - EcDsStFtpServerICL1.ALOG.
  - EcDsStStagingDiskServerICL1.ALOG.
- FSMS Server (e.g., **e0drg01, g0drg01, l0drg01, n0drg01**) has the following storage management log files (among others):
  - EcDsStArchiveServerDRP1.ALOG
  - EcDsStCacheManagerServerDRP1.ALOG.
  - EcDsStCacheManagerServerDebug.log
  - EcDsStFtpServerDRP1.ALOG.
  - EcDsStStagingDiskServerDRP1.ALOG.
  - EcDsStStagingDiskServerDebug.log
- SDSRV Server (e.g., **e0acs05, g0acs03, l0acs03, n0acs04**) has the following science data server log files (among others):
  - EcDsGranuleDelete.ALOG.
  - EcDsScienceDataServer.ALOG.
  - EcDsScienceDataServerClient.ALOG.
  - EcDsSdSrvGui.ALOG.
- Interface Server 02 (e.g., **e0ins01, g0ins01, l0ins01, n0ins01**) host has the following log files (among others):
  - EcInEmailGWServer.ALOG.
  - EcIoAdServer.ALOG.
  - EcIoAdServerDebug.log
- Interface Server 01 (e.g., **e0ins02, g0ins02, l0ins02, n0ins02**) has the following log files (among others):
  - EcSbSubServer.ALOG file.
  - EcSbSubServerDebug.log
- Distribution Server (e.g., **e0dis02, g0dis02, l0dis02, n0dis02**) has the following data distribution and storage management log files (among others):
  - EcDsDdistGui.ALOG.
  - EcDsDistributionServer.ALOG.
  - EcDsSt8MMServerNONE.ALOG.
  - EcDsStD3Server NONE.ALOG.
  - EcDsStRequestManagerServer.ALOG
  - EcDsStRequestManagerServerDebug.log
  - EcDsStStagingDiskServerDIP1.ALOG.
  - EcDsStmgtGui.ALOG.

- APC Server (e.g., **e0acg11, g0acg01, l0acg02, n0acg01**) has the following storage management log files (among others):
  - EcDsStArchiveServerACM1.ALOG.
  - EcDsStCacheManagerServerACM1.ALOG.
  - EcDsStFtpServerNONE.ALOG.
  - EcDsStStagingDiskServerACM1.ALOG.
- Working Storage (e.g., **e0wkg01**) has the following storage management and science data server log files (among others):
  - EcDsStArchiveServerWKS1.ALOG
  - EcDsStCacheManagerServerWKS1.ALOG.
  - EcDsStFtpServerWKS1.ALOG.
  - EcDsStStagingDiskServerWKS1.ALOG.
  - EcDsHdfEosServer.ALOG.

2 At the command line prompt enter:

cd /usr/ecs/<MODE>/CUSTOM/logs

- **<MODE>** is current mode of operation.
  - TS1 - Science Software Integration and Test (SSI&T)
  - TS2 - New Version Checkout
  - OPS - Normal Operations
- "**logs**" is the directory containing log files (e.g., EcInGUI.ALOG, EcInReqMgr.ALOG, EcInPolling.ALOG, EcInRegenFailedPDR.log, EcInEmailGWServer.ALOG).

3 At the command line prompt enter:

pg <file name>

- **<file name>** refers to the log file to be reviewed (e.g., EcInReqMgr.ALOG, EcInPolling.ALOG, EcInGran.ALOG, EcInGUI.ALOG).
- The first page of the log file is displayed.
- Although this procedure has been written for the **pg** command, any UNIX editor or visualizing command (e.g., **more**, **vi**, **view**) can be used to review the log file.

4 Review the log file to identify problems that have occurred.

- The log file for the called server may contain an error message indicating a problem at start-up. If the debug log is being checked, it should indicate a typical start sequence, including the following types of entries:
  - Get parameters from registry.
  - Load resource catalogs (log entries indicate the loading, or that the loading did not complete).
  - Identify pre-cache errors associated with database connectivity.
  - Get server configuration parameters from the database.
  - Spawn receptionist thread and register server in the database.
  - Spawn service threads.

- Process Restart Notification for server restart ("Ready to accept requests").
- Check queue for requests ("Waiting for an event" means there is nothing else in the queue.).

- The log file for the server from which the call originated may indicate a problem completing a connection. The log should indicate successful awakening of a remote host and should indicate completion of a connection to the called server.
- To exit from **pg** at the **:** prompt enter:

  q

  - The command line prompt is displayed.

5 Respond to problems as follows:

- Communication problems.
  - Notify the Operations Controller/System Administrator of suspected communication problems.
- Database problems.
  - Verify that relevant database servers are running.
  - Check for lack of (or corruption of) data in the database using either a database browser or interactive structured query language (isql) commands.
  - Notify the Database Administrator of suspected database problems.
- Lack of disk space.
  - Remove unnecessary files.
  - Notify the Operations Controller/System Administrator of recurring disk space problems.

Table 16.6-6. Check Log Files - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	UNIX window	Use procedure in Section 16.2.1
2	**cd /usr/ecs/<MODE>/CUSTOM/logs**	**enter text, press Enter**
3	**pg <file name>**	**enter text, press Enter**
4	Identify problems indicated in the log file	**read text**
5	Respond to problems as necessary	

16.6.2 Recover from a Data Ingest Failure

The polling interfaces normally do not require intervention by the Ingest Technician. However, when an ingest fault (error) occurs, there may be a requirement for action to recover from the error. Recovery actions may be made necessary by invalid PDR contents or other file errors that result in data ingest failure.

When a fault (error) occurs, the following actions occur:

- The processing of the ingest request stops.
- A message is sent to the Ingest Technician and the data provider with a brief description of the problem.

The Ingest Technician may use the Ingest GUI Monitor/Control screen, the Ingest History Log (refer to the section on Ingest Status Monitoring) and/or the following log files (in the /usr/ecs/<MODE>/CUSTOM/logs directory on the ingest host machine) to review the failure event:

- EcInReqMgr.ALOG (ingest request manager log).
- EcInPolling.ALOG (automated polling ingest log).
- EcInGran.ALOG (granule server log).
- EcInGUI.ALOG (Ingest GUI log).
- EcInEmailGWServer.ALOG (Ingest E-Mail Parser log).

This section contains some examples of faults that are likely to occur, describes the notifications provided, and proposes operator actions in response to each fault situation. The specific recovery actions may vary due to operator preference or local DAAC policy.

Table 16.6-7 presents (in a condensed format) the steps required to recover from a data ingest failure. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If the **ECS Ingest** GUI is not already being displayed and an operator alert or a report from a data provider (by telephone or e-mail) has been received, launch the **ECS Ingest** GUI (refer to Section 16.2.2).

- The **ECS Ingest** GUI is displayed.

2 **Single-click** on the **ECS Ingest** GUI **Monitor/Control** tab.

- The **Monitor/Control** screen is displayed.

3 Use the **Monitor/Control** screen scroll bars as necessary to identify the faulty ingest request.

- For detailed instructions refer to the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).
- When there is a data ingest failure, the system provides the following three responses:
  - Logs the error.
  - Alerts the Ingest Technician.
  - Returns a PDRD (PDR error) or PAN (retrieval problem) to the data provider indicating the nature of the failure.
- Note that ECS does not send PDRDs to EDOS.

4 If a PDRD or PAN is available, review the appropriate file.
- For detailed instructions refer to the procedure **Check Ingest Notification Files** procedure (Section 16.6.2.1).

5 If additional information is needed, open and read the appropriate log file in the **/usr/ecs/<MODE>/CUSTOM/logs** directory on the ingest host machine.
- For detailed instructions refer to the **Check Log Files** procedure (Section 16.6.1.2).

6 Perform the appropriate recovery procedure depending on the nature of the problem:
- **Recover from a Faulty PDR or Other File Problems (Polling with Delivery Record)** (Section 16.6.2.2).
- **Recover from Exceeding the Volume Threshold** (Section 16.6.2.10).
- **Recover from Exceeding the Maximum Number of Concurrent Requests** (Section 16.6.2.11).
- **Recover from Insufficient Disk Space** (Section 16.6.2.12).
- **Recover from Exceeding the Expiration Date/Time Period** (Section 16.6.2.13).
- **Recover from File Transfer (ftp) Error** (Section 16.6.2.14).
- **Recover from Processing Errors** (Section 16.6.2.15).
- **Recover from D3 Ingest Failures** (Section 16.6.2.16).
- **Recover from Failure to Store Data** (Section 16.6.3).

Table 16.6-7. Recover from a Data Ingest Failure - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	Launch the **ECS Ingest** GUI (if necessary)	Use procedure in Section 16.2.2
2	**Monitor/Control** tab	**single-click**
3	Identify the faulty ingest request	Use procedure in Section 16.2.5
4	Review PDRD or PAN (as applicable)	Use procedure in Section 16.6.2.1
5	Check applicable log files if necessary	Use procedure in Section 16.6.1.2
6	Perform the appropriate recovery procedure depending on the nature of the problem	Use applicable procedure(s) in Sections 16.6.2.2 through 16.6.2.16

16.6.2.1 Check Ingest Notification Files (Polling with Delivery Record)

Transfer errors, PDR information discrepancies, and other file problems (if any) are captured and logged in the PAN that ECS sends to the data provider when ingest has terminated. Most data providers accept two formats for PANs; i.e., short and long. The following dispositions of data transfers are typical of both short and long PANs:

- Successful.
- Network Failure.
- Unable to Establish FTP/KFTP Connection.
- All File Groups/Files Not Found.
- FTP/KFTP Failure.

- Post-Transfer File Size Check Failure.
- FTP/KFTP Command Failure.
- Duplicate File Name in Granule.
- Metadata Preprocessing Error.
- Resource Allocation Failure.
- ECS Internal Error.
- Data Base Access Error.
- Incorrect Number of Metadata Files.
- Incorrect Number of Science Files.
- Incorrect Number of Files.
- Data Conversion Failure.
- Request Cancelled.
- Invalid or Missing File Type.
- File I/O Error.
- Data Archive Error.
- Linkage File Preprocessing Error.
- Referenced Granule Not Found.
- Referenced Granule Duplicated.

PDS/EDS Acceptance Notifications to EDOS have a single format that uses the following integers to indicate the disposition of the data transfer:

- 0 [Successful].
- 4 [File Not Found].
- 8 [File Unreadable].
- 9 [Invalid PDS/EDS Construction Record Data].
- 10 [Invalid PDS/EDS Delivery Record Data].

The short form of the PAN is sent to a data provider to acknowledge that all files have been successfully transferred, or to report errors that are not specific to individual files but which have precluded processing of any and all files (e.g., ftp failure). If all files in a request do not have the same disposition, the long form of the PAN is employed. For each file in a file group, if an error is encountered, ECS halts processing and reports the error that it just encountered for that file. The remaining conditions in the file are not validated. ECS processing continues with the next file in the file group. If there are no more files to process in the file group, ECS processing continues with the next file group in the PDR.

If one or more of the pointers in a linkage file cannot be resolved, the ingest fails and the PAN is sent with either the disposition message “Referenced Granule Not Found” or “Referenced Granule Duplicated.”

Exchange of data on physical media is used for data transfer back-up in emergencies. It is supported by ECS and some data providers.

The data provider must correct files with errors (as identified in the PAN) and resubmit the complete file group under a new PDR. The revised PDR should not include the file groups that were successfully transferred/archived.

If a PAN from ECS indicates that a PDR has errors, ECS will have processed only the file groups without errors. For PDR file groups with errors, the data provider must correct the files/file information accordingly and retransmit the corrected file groups under a new PDR.

In the event that a PDR is invalid, ECS automatically returns a PDRD (via either e-mail or ftp) to the data provider unless no PDRDs are specified in the ICD between ECS and the data provider. (ECS does not provide PDRDs to EDOS for example.) If an error is detected in the PDR, processing is terminated and none of the specified files are transferred to the ECS server for processing until a corrected PDR is received and successfully processed. If the PDR is valid, ECS schedules pulling the files specified in the PDR using an ftp "get" command, and in such a case no PDRD is sent.

If the entire PDR is determined to be invalid, as reflected in a corresponding PDRD, none of the file groups listed in the PDR are processed and none of the files are transferred by ECS. The PDR must be corrected and resubmitted.

If a PDR contains multiple file groups for which one or more file groups contain errors, the file groups with errors are not processed. However, the file groups without errors are processed by ECS. After the ingest/archive process, ECS automatically returns a PAN via to the data provider indicating success/failure, including detected errors.

There are two formats for PDRDs; i.e., short and long. The short form is used when the first error encountered in each file group within the PDR is the same or the first error found applies to each group. The long form is used when one or more file groups in the PDR have invalid parameters. (Some file groups may be error-free.) For each file group, if an error is encountered when the PDR is processed, ECS halts processing and reports the error that it just encountered for that file group. None of the remaining conditions in that file group are validated. ECS processing then continues with the next file group in the PDR.

The dispositions in the Long PDRD are reported for all file groups in the order listed in the PDR. In the event that a PDRD is returned to the data provider, none of the files are transferred to the ECS for processing, and the data provider must correct the errors and resubmit the entire PDR for processing.

The following dispositions can be specified in short PDRDs:

- ECS Internal Error.
- Database Failures.
- Invalid PVL Statement.
- Missing or Invalid Originating_System Parameter.
- Data Provider Request Threshold Exceeded.
- Data Provider Volume Threshold Exceeded.
- System Request Threshold Exceeded.
- System Volume Threshold Exceeded.

The following dispositions can be specified in long PDRDs:

- Successful.
- Invalid Data Type.

- Invalid Directory.
- Invalid File Size.
- Invalid File ID,
- Invalid Node Name.
- Invalid File Type.

Table 16.6-8 presents (in a condensed format) the steps required to check ingest notification files. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Ingest Server host.
- Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01**, **n0icg01**.
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the command line prompt enter:

cd <PATH>

- Change directory to the directory containing the ingest notification files.
  - For example:

    /usr/ecs/OPS/CUSTOM/icl//x0icg01/data/remote/EDOS/Response

3 At the command line prompt enter:

ls -al

- A listing of files in the directory is displayed.

4 At the command line prompt enter:

pg <file name>

- **<file name>** refers to the ingest notification file to be reviewed.
  - Examples include GDA1.972858114.PAN, MODAPS_GSFC.20001200000000.PDRD, MODAPS_GSFC.20001200000000.PAN).
- The first page of the ingest notification file is displayed.
- Although this procedure has been written for the **pg** command, any UNIX editor or visualizing command (e.g., **vi**, **view, more**) can be used to review the log file.

5 Review the ingest notification file to identify problems that have occurred.

- Final states ("dispositions") of data transfers (as specified in various types of ingest notification files) are described in the preceding sections of this procedure.
- To exit from **pg** at the **:** prompt enter:

  q

  – The command line prompt is displayed.

Table 16.6-8. Check Ingest Notification Files - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	UNIX window (Ingest Server)	Use procedure in Section 16.2.1
2	**cd <PATH>**	**enter text, press Enter**
3	**ls -al**	**enter text, press Enter**
4	**pg <file name>**	**enter text, press Enter**
5	Review the ingest notification file to identify problems	**read text**

16.6.2.2 Recover from a Faulty PDR or Other File Problems (Polling with Delivery Record)

The procedure to **Recover from a Faulty PDR or Other File Problems (Polling with Delivery Record)** is performed as part of the **Recover from a Data Ingest Failure** procedure (Section 16.6.2).

Table 16.6-9 presents (in a condensed format) the steps required to recover from a faulty PDR or other file problems (polling with delivery record). If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If the PDR/EDR fails and if appropriate, perform the procedure for regenerate the failed PDR/EDR.

- For example, if a "long PAN" message file was generated, it would be appropriate to regenerate the failed delivery record.
- If the relevant ICD or Operations Agreement specifies) that the data provider will provide a corrected PDR, in case of a failed delivery record, skip this step and go to Step 2.
- For detailed instructions refer to the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).

2 If the PDR/EDR fails and the relevant ICD and/or Operations Agreement specify(ies) that the data provider will provide a corrected PDR, contact (by telephone or e-mail) the data provider to discuss the following issues:

- Report the ingest failure.
- Discuss what has been discovered from reviewing the failure event data.
- Determine whether the data provider will re-initiate the data ingest request with a new PDR or will provide the data via another medium (e.g., D3 tape).

3 If there is an ECS Ingest process abort during file transfer, take action to recover from the resultant file transfer (ftp) error.

- An ECS system failure during file transfer that suspended file transfer would constitute an ECS Ingest process abort.
- During the course of data exchange via ftp, any of the following error conditions may arise:
  - Failure to establish TCP/IP connection.
  - Erroneous ftp command.
  - File not found (listed in PDR/EDR, but not found on disk).
  - File not readable due to permissions.
- For detailed instructions refer to the **Recover from File Transfer (ftp) Error** procedure (Section 16.6.2.14).

4 If EDOS is the data provider and for any reason the File Transfer Disposition in the PAN indicates that an error occurred, send a Problem Report to EDOS to report the problem.

- Information concerning the Problem Report to be sent to EDOS is specified in the Operations Agreement with EDOS.

5 If the data ingest request is to be re-initiated, monitor the subsequent ingest.

- For detailed instructions refer to the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

Table 16.6-9. Recover from a Faulty PDR or Other File Problems (Polling with Delivery Record) - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	Regenerate the failed PDR/EDR (if applicable)	Use procedure in Section 16.6.2.3
2	If the PDR/EDR fails and the relevant ICD and/or Operations Agreement specify(ies) that the data provider will provide a corrected PDR, contact the data provider	**contact data provider**
3	Recover from the file transfer (ftp) error (if applicable)	Use procedure in Section 16.6.2.14
4	Send a Problem Report to EDOS (if applicable)	Use procedure in Operations Agreement with EDOS

Table 16.6-9. Recover from a Faulty PDR or Other File Problems (Polling with Delivery Record) - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take
5	If the data ingest request is to be re-initiated, monitor the subsequent ingest	Use procedure in Section 16.2.5

16.6.2.3 Regenerate Failed PDRs

The procedure to **Regenerate Failed PDRs** is performed as part of the **Recover from a Faulty PDR or Other File Problems (Polling with Delivery Record)** procedure (Section 16.6.2.2). The **Regenerate Failed PDR Tool** provides the Ingest Technician with a means of regenerating failed PDRs.

The **Regenerate Failed PDR Tool** can be used whenever a PDR fails and results in a "long PAN" message file. The long PAN means that the request had more than one granule and not all granules had the same error. The purpose of the tool is to provide a means for the ECS operations staff to generate a PDR for each failed granule in a PDR and copy the generated PDRs to an Ingest polling directory, where Ingest polling would detected them and initiate ingest of the relevant granule(s). Consequently, the operations staff would not have to either manually edit the original PDR file or submit all failed granules to Ingest polling (which would create duplicate granules in the archive).

Table 16.6-10 presents (in a condensed format) the steps required to regenerate failed PDRs. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Ingest Server host.
- Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01**, **n0icg01**.
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the command line prompt enter:

cd /usr/ecs/<MODE>/CUSTOM/utilities

- Change directory to the directory containing the Ingest utility scripts.

3 At the command line prompt enter:

EcInRegenFailedPDRStart <MODE>

- The following message and prompt are displayed:

1. Generate PDRs
2. Quit
>>

NOTE: If the Regenerate Failed PDR Tool displays an error message while the procedure is being performed, refer to Table 4, Regenerate Failed PDR Tool User Messages (adapted from the corresponding table in 609-CD-600-001, *Release 6A Operations Tools Manual for the ECS Project*). The table describes appropriate responses to the error messages.

4 At the program prompt enter:

1

- The following message and prompt are displayed:

  Please enter PDR filename with path
  >>

5 At the program prompt enter:

<path>/<PDR file name>

- For example:

  >> /usr/ecs/OPS/CUSTOM/icl/x0icg01/data/pollEDOS/pdrs/ P0420004AAAAAAAAAAAAAA99040150000.PDR

  – The path varies from site to site.
- The following message and prompt are displayed:

  Please enter PAN filename with path
  >>

6 At the program prompt enter:

<path>/<PAN file name>

- For example:

  >> /usr/ecs/OPS/CUSTOM/icl/x0icg01/data/remote/EDOS/Response P0420004AAAAAAAAAAAAAA99040150000.PAN

  – The path varies from site to site.
- The following message and prompt are displayed:

  Please enter the path of the Polling directory into which the PDRs should be copied
  >>

7 At the program prompt enter:

<path>

- For example:

  >> /usr/ecs/OPS/CUSTOM/icl/x0icg01/data/pollEDOS

  – The path varies from site to site.
- The PDR file is created in the specified directory.

- The following message and prompt are displayed:

  The new PDR file <PDR file name> was created successfully.
  Please inspect this PDR file and correct any errors found.
  Do you want this PDR to be moved to the Polling directory (y/n)?
  >>

8 At the program prompt enter:

y

- The PDR file is moved to the specified polling directory.
- The following message and prompt are displayed:

  1. Generate PDRs
  2. Quit
  >>

- If **n** were typed at the prompt, the Regenerate Failed PDR Tool would display a message inquiring as to whether the PDR file should be deleted.

9 To exit from the Regenerate Failed PDR Tool at the program prompt enter:

2

- A UNIX shell prompt is displayed.

Table 16.6-10. Regenerate Failed PDRs - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	UNIX window (Ingest Server)	Use procedure in Section 16.2.1
2	**cd /usr/ecs/<MODE>/CUSTOM/utilities**	**enter text, press Enter**
3	**EcInRegenFailedPDRStart <MODE>**	**enter text, press Enter**
4	**1**	**enter text, press Enter**
5	**<path>/<PDR file name>**	**enter text, press Enter**
6	**<path>/<PAN file name>**	**enter text, press Enter**
7	**<path>**	**enter text, press Enter**
8	**y**	**enter text, press Enter**
9	**2**	**enter text, press Enter**

16.6.2.4 Remove (Delete) Generated PDRs

The procedure for removing (deleting) generated PDRs is performed in response to the following error message from the **Regenerate Failed PDR Tool**:

- Error occurred when trying to delete the new PDR file.

The **Regenerate Failed PDR Tool** normally deletes the PDR files it generates to allow the ingest of individual granules. If the **Regenerate Failed PDR Tool** is unable to delete a generated PDR file when it is no longer needed, the PDR file must be removed manually.

Table 16.6-11 presents (in a condensed format) the steps required to remove (delete) generated PDRs. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Ingest Server host.
- Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01**, **n0icg01**.
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the command line prompt enter:

cd <path>
- Change directory to the directory where the **Regenerate Failed PDR Tool** created the PDR file(s).
- For example:

  /usr/ecs/OPS/CUSTOM/icl/x0icg01/data/pollEDOS

3 At the command line prompt enter:

ls
- A listing of the files in the directory is displayed.

4 Observe the files listed to determine whether the generated PDR file(s) is (are) still in the creation directory.

5 If the generated PDR file(s) is (are) still in the creation directory, at the command line prompt enter:

rm <file name>
- Request deletion of the generated PDR file(s).

6 If a **rm: remove <file name> (yes/no)?** message is displayed, at the command line prompt enter:

y
- The generated PDR file(s) is (are) deleted.

Table 16.6-11. Remove (Delete) Generated PDRs - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	UNIX window (Ingest Server)	Use procedure in Section 16.2.1
2	**cd <path>**	**enter text, press Enter**
3	**ls**	**enter text, press Enter**
4	Observe the files listed to determine whether the generated PDR file(s) is (are) still in the creation directory	**read text**
5	**rm <file name>** (if applicable)	**enter text, press Enter**
6	**y** (If applicable)	**enter text, press Enter**

16.6.2.5 Check/Edit a PDR

The procedure for checking/editing a PDR is performed in response to one of the following error messages from the **Regenerate Failed PDR Tool**:

- InDAN::GetGranuleVolume returned an error for granule.
- InDAN::GetFileInfo returned an error for granule.
- Unable to parse the PDR file.

Table 16.6-12 presents (in a condensed format) the steps required to check/edit a PDR. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Ingest Server host.

- Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01**, **n0icg01**.
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the command line prompt enter:

cd <path>

- Change to the directory where the original PDR is located.
- For example:

  /usr/ecs/OPS/CUSTOM/icl/x0icg01/data/pollEDOS/pdrs

3 At the command line prompt enter:

ls

- A listing of the files in the directory is displayed.

4 At the command line prompt enter:

vi <file name>

- The contents of the PDR are displayed.
- Although this procedure has been written for the **vi** command, any UNIX editor can be used to edit the file.

5 Observe the contents of the PDR to determine whether the format and information are correct.

- If the error message was **InDAN::GetFileInfo returned an error for granule**, check whether the file information is set correctly.
- If the error message was **InDAN::GetGranuleVolume returned an error for granule**, check whether the volumes are set correctly.
- If the error message was **Unable to parse the PDR file** check to see why the program cannot parse the file.

6 If the contents of the PDR are not correct, edit the PDR file using **vi** editor (or other UNIX editor) commands.

- The following vi editor commands are useful:
  - **h** (move cursor left).
  - **j** (move cursor down).
  - **k** (move cursor up).
  - **l** (move cursor right).
  - **a** (append text).
  - **i** (insert text).
  - **x** (delete a character).
  - **u** (undo previous change).
  - **Esc** (switch to command mode).
- Refer to the applicable PAN (if necessary) to determine what information in the PDR needs to be modified.

7 If the vi editor is being used to edit the PDR file, press the **Esc** key.

8 If the vi editor is being used to edit the PDR file, at the **vi** editor prompt enter:

ZZ or **:wq!**

- Revised PDR file is saved.

Table 16.6-12. Check/Edit a PDR - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	UNIX window (Ingest Server)	Use procedure in Section 16.2.1
2	**cd <path>**	**enter text, press Enter**
3	**ls**	**enter text, press Enter**

Table 16.6-12. Check/Edit a PDR - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take
4	**vi <file name>**	**enter text, press Enter**
5	Observe the contents of the PDR to determine whether the format and information are correct	**read text**
6	Use vi editor commands to modify the PDR as necessary	**enter text**
7	**Esc** key	**enter text**
8	**ZZ** (or **:wq!**)	**enter text, press Enter**

16.6.2.6 Check PAN Contents

The procedure for checking PAN contents is performed in response to the following error message from the **Regenerate Failed PDR Tool**:

- PAN file is not formatted correctly.

Table 16.6-13 presents (in a condensed format) the steps required to check PAN contents. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Ingest Server host.
- Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01**, **n0icg01**.
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the command line prompt enter:

cd <path>
- Change to the directory where the PAN is located.
- For example:

  /usr/ecs/OPS/CUSTOM/icl/x0icg01/data/remote/EDOS/Response

3 At the command line prompt enter:

ls
- A listing of the files in the directory is displayed.

4 At the command line prompt enter:

vi <file name>
- The contents of the PAN are displayed.
- Although this procedure has been written for the **vi** command, any UNIX editor can be used to edit the file.

5 Observe the contents of the PAN to determine what aspect of the format is incorrect.

6 If the PAN format is incorrect, edit the PAN file using **vi** editor (or other UNIX editor) commands.

- The following vi editor commands are useful:
  - **h** (move cursor left).
  - **j** (move cursor down).
  - **k** (move cursor up).
  - **l** (move cursor right).
  - **a** (append text).
  - **i** (insert text).
  - **x** (delete a character).
  - **u** (undo previous change).
  - **Esc** (switch to command mode).

7 If the vi editor is being used to edit the PAN file, press the **Esc** key.

8 If the vi editor is being used to edit the PAN file, at the **vi** editor prompt enter:

ZZ or **:wq!**

- Revised PAN file is saved.

Table 16.6-13. Check PAN Contents - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	UNIX window (Ingest Server)	Use procedure in Section 16.2.1
2	**cd** <**path>**	**enter text, press Enter**
3	**ls**	**enter text, press Enter**
4	**vi <file name>**	**enter text, press Enter**
5	Observe the contents of the PAN to determine what aspect of the format is incorrect	**read text**
6	Use vi editor commands to modify the PAN	**enter text**
7	**Esc** key	**enter text**
8	**ZZ** (or **:wq!**)	**enter text, press Enter**

16.6.2.7 Check for Memory Problems

The procedure for checking for memory problems is performed in response to either of the following error messages from the **Regenerate Failed PDR Tool**:

- Unable to allocate memory for DataTypeList.
- Unable to allocate memory for DataTypeList.FileList.

Table 16.6-14 presents (in a condensed format) the steps required to check for memory problems. If you are already familiar with the procedures, you may prefer to use the quick-step

table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Ingest Server host.
- Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01**, **n0icg01**.
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the command line prompt enter:

vmstat 5

- The vmstat UNIX command reports certain statistics concerning process, virtual memory, disk, trap, and CPU activity.
  - If an interval (e.g., **5**) is specified, vmstat summarizes activity over the specified number of seconds, repeating forever.
- For example:

```
x0icg01{allmode}142: vmstat 5
 procs     memory          page            disk     faults      cpu
 r b w   swap  free re  mf pi po fr de sr s0 s1  in   sy  cs us sy id
 0 0 0  14744  1976  0  42  7  1  2  0  0  1  0 129 1442  86 21  3 76
 0 0 0 668784  8424  0   0  0  4  4  0  0  1  0 122  220  69  0  0 100
 0 0 0 668760  8496  0 411  0 22 22  0  0  3  0 132  864 178  4  4 92
 0 0 0 668784  8520  0 242  0  1  1  0  0  0  0 124  394  93  1  3 96
 0 0 0 668784  8520  0   0  0  0  0  0  0 12  0 165   97  71  0  1 99
 0 0 0 668784  8504  0   0  1  1  1  0  0  0  0 121  109  76  0  0 100
 0 0 0 668784  8496  0   0  1  0  0  0  0  0  0 119   82  69  0  0 100
 0 0 0 668784  8488  0   0  0  3  3  0  0  0  0 121   81  69  0  0 100
 0 0 0 668784  8544  0   0  3  9  9  0  0  2  0 124  113  76  0  0 100
```

- The **memory** fields in the report indicate the usage of virtual and real memory.
  - The **swap** field shows the amount of swap space currently available (in Kilobytes).
  - The **free** field shows the size of the free list (in Kilobytes).

3 Report the symptoms and the results of the memory status check to the System Administrator and/or submit a trouble ticket.

Table 16.6-14. Check for Memory Problems - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	UNIX window (Ingest Server)	Use procedure in Section 16.2.1
2	**Vmstat 5**	**enter text, press Enter**
3	Report the symptoms and the results of the memory status check to the System Administrator and/or submit a trouble ticket	**contact System Administrator**

16.6.2.8 Check the Polling Directory

The procedure for checking the polling directory is performed in response to the following error message from the **Regenerate Failed PDR Tool**:

- Unable to copy the new PDR file into the Polling directory.

Table 16.6-15 presents (in a condensed format) the steps required to check the polling directory. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Ingest Server host.

- Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01**, **n0icg01**.
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the command line prompt enter:

cd <path>

- The **<path>** represents the path to the polling directory.
- For example:

  /usr/ecs/OPS/CUSTOM/icl/x0icg03/data/pollEDOS

  – The path varies from site to site.

3 If a **No such file or directory** message is displayed and the directory should be accessible to the current host machine, report the problem to the System Administrator and/or submit a trouble ticket.

- Go to the **Regenerate Failed PDRs** procedure (Section 16.6.2.3) after the problem has been fixed.

4 If a **No such file or directory** message is displayed and the directory is not expected to be accessible to the current host machine, at the command line prompt enter:

<PDR path>

- The <**PDR path**> represents the path to the directory where the PDR is located.
- For example:

  /usr/ecs/OPS/CUSTOM/icl/x0icg01/data/pollEDOS

  – Note that the path in the example in Step 2 includes **x0icg03** whereas the path in the current example specifies **x0icg01**.

5 At the command line prompt enter:

ftp <host name>

- The <**host name**> represents a host that allows access to the desired polling directory; e.g., **x0icg03.daac.ecs.nasa.gov**.
- The following type of response is displayed:

  Connected to x0icg03.daac.ecs.nasa.gov.
  220-NOTICE: unknown@echuser.east.hitc.com,
  220-*
  220-
  220-THIS U.S. GOVERNMENT COMPUTING SYSTEM IS FOR AUTHORIZED USERS
  220-ONLY. ANYONE USING IT IS SUBJECT TO MONITORING AND RECORDING
  220-OF ALL KEYSTROKES WITHOUT FURTHER NOTICE. THIS RECORD MAY BE
  220-PROVIDED AS EVIDENCE TO LAW ENFORCEMENT OFFICIALS.
  220-
  220-*
  220 x0icg03 FTP server (UNIX(r) System V Release 4.0) ready.
  Name (x0icg03.daac.ecs.nasa.gov:allmode):

6 At the **Name:** prompt enter:

<user ID>

7 At the **Password:** prompt enter:

<**password>**

- The following type of response is displayed:

  230 User allmode logged in.
  ftp>

8 At the **ftp>** prompt enter:

cd <path>

- The **<path>** represents the path to the polling directory.
- For example:

  /usr/ecs/OPS/CUSTOM/icl/x0icg03/data/pollEDOS

- The directory is changed to the directory that will receive the PDR.

9 At the **ftp>** prompt enter:

put <PDR file name>

- For example:

  ftp> put P0420004AAAAAAAAAAAAA99040150000.PDR

- The following type of response is displayed to indicate a successful file transfer:

  200 PORT command successful.
  150 Opening ASCII mode data connection for '
  P0420004AAAAAAAAAAAAA99040150000.PDR '.
  226 Transfer complete.
  local: P0420004AAAAAAAAAAAAA99040150000.PDR remote:
  P0420004AAAAAAAAAAAAA99040150000.PDR
  3691 bytes sent in 0.065 seconds (55 Kbytes/s)

10 At the **ftp>** prompt enter:

quit

- The ftp program is dismissed.

11 Monitor the subsequent ingest (specified in the PDR).

- For detailed instructions refer to the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

Table 16.6-15. Check the Polling Directory - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	UNIX window (Ingest Server)	Use procedure in Section 16.2.1
2	**cd <path>** (to polling directory)	**enter text, press Enter**
3	Report the problem to the System Administrator and/or submit a trouble ticket (if applicable)	**contact System Administrator**
4	**<PDR path>** (if applicable)	**enter text, press Enter**
5	**ftp <host name>** (if applicable)	**enter text, press Enter**
6	**<user ID>** (if applicable)	**enter text, press Enter**
7	<**password>** (if applicable)	**enter text, press Enter**
8	**cd <path>** (polling directory) (if applicable)	**enter text, press Enter**

Table 16.6-15. Check the Polling Directory - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take
9	**put <PDR file name>** (if applicable)	**enter text, press Enter**
10	**Quit** (if applicable)	**enter text, press Enter**
11	Monitor the subsequent ingest (if applicable)	Use procedure in Section 16.2.5

16.6.2.9 Check PAN Accessibility

The procedure for checking PAN accessibility is performed in response to the following error message from the **Regenerate Failed PDR Tool**:

- Unable to open the PAN file.

Table 16.6-16 presents (in a condensed format) the steps required to check PAN accessibility. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Ingest Server host.
- Examples of Ingest Server host names include **e0icg11**, **g0icg01**, **l0icg01**, **n0icg01**.
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the command line prompt enter:

cd <path>

- Change to the directory where the PAN is located.
- For example:

  /usr/ecs/OPS/CUSTOM/icl/x0icg01/data/remote/EDOS/Response

  – The path varies from site to site.

3 If a **No such file or directory** message is displayed and the directory should be accessible to the current host machine, report the problem to the System Administrator and/or submit a trouble ticket.
- Go to the **Regenerate Failed PDRs** procedure (Section 16.6.2.3) after the problem has been fixed.

4 At the command line prompt enter:

ls

- A listing of the files in the directory is displayed.
- The relevant PAN should be included in the list.

5 If the relevant PAN is included in the directory listing, go to the **Regenerate Failed PDRs** procedure (Section 16.6.2.3).

- Pay particular attention to accurate typing of the PAN file name and path.

6 If the relevant PAN is not included in the directory listing, go to the **Recover from a Faulty PDR or Other File Problems (Polling with Delivery Record)** procedure (Section 16.6.2.2).

Table 16.6-16. Check PAN Accessibility - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	UNIX window (Ingest Server)	Use procedure in Section 16.2.1
2	**cd <path>** (PAN location)	**enter text, press Enter**
3	Report the problem to the System Administrator and/or submit a trouble ticket (if applicable)	**contact System Administrator**
4	**ls** (if applicable)	**enter text, press Enter**
5	Regenerate failed PDR (if the relevant PAN is included in the directory listing)	Use procedure in Section 16.6.2.3
6	Recover from the faulty PDR (if the relevant PAN is not included in the directory listing)	Use procedure in Section 16.6.2.2

16.6.2.10 Recover from Exceeding the Volume Threshold

CAUTION

As of Release 6A.XX (6A.05), the thresholds are retrieved from the Ingest database when the Ingest Request Manager comes up (as in previous code). However, the threshold checks are done two different ways - sometimes in memory and sometimes by a database stored procedure. The database stored procedure uses the values in the database. If the Granule Server thresholds are changed in the database while Ingest is running there will be a mismatch between the values in memory and the values in the database. This could cause an Ingest failure.

One reason data ingest may fail is for exceeding the specified system volume threshold. In such cases the system sends a PAN to the data provider indicating that the system is full and an attempt should be retried again later.

The procedure to **Recover from Exceeding the Volume Threshold** is performed as part of the **Recover from a Data Ingest Failure** procedure (Section 16.6.2). The **ECS Ingest** GUI provides the Ingest Technician with a means of recovering from exceeding the volume threshold.

Table 16.6-17 presents (in a condensed format) the steps required to recover from exceeding the volume threshold. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If the **ECS Ingest** GUI is not already being displayed and it is decided to increase the system volume threshold, launch the **ECS Ingest** GUI (refer to Section 16.2.2).
- The **ECS Ingest** GUI is displayed.

2 **Single-click** on the **Operator Tools** tab.
- The **Operator Tools** screen is displayed.

3 **Single-click** on the **Modify System Parameters** tab.
- The **Modify System Parameters** screen is displayed.

4 To modify the volume threshold enter (in the **Volume Threshold - New:** field):

<volume threshold>

- The *current* value for the volume threshold is printed on the corresponding line for reference purposes.

5 **Single-click** on the **OK** button at the bottom of the **Operator Tools: Modify System Parameters** tab to save the changes to system parameters.
- The changes are invoked.

6 **Single-click** on the **Monitor/Control** tab.
- The **Monitor/Control** screen is displayed.

7 **Single-click** on the **All Requests** button.
- Alternatively, either a particular **Data Provider** or **Request ID** may be specified as described in the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

8 **Single-click** on the **Text View** button.

9 If the data ingest request is to be re-initiated, monitor the subsequent ingest.
- For detailed instructions refer to the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

Table 16.6-17. Recover from Exceeding the Volume Threshold - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	Launch the **ECS Ingest** GUI (if necessary)	Use procedure in Section 16.2.2
2	**Operator Tools** tab	**single-click**
3	**Modify System Parameters** tab	**single-click**
4	**<volume threshold>** (**Volume Threshold - New:** field)	**enter text**
5	**OK** button (**Operator Tools: Modify System Parameters** tab) (if applicable)	**single-click**
6	**Monitor/Control** tab	**single-click**
7	**All Requests** button	**single-click**
8	**Text View** button	**single-click**
9	If the data ingest request is to be re-initiated, monitor the subsequent ingest	Use procedure in Section 16.2.5

16.6.2.11 Recover from Exceeding the Maximum Number of Concurrent Requests

If the specified system request threshold has been exceeded, the system sends a PAN to the data provider indicating that the system is full and an attempt should be retried again later.

The procedure to **Recover from Exceeding the Maximum Number of Concurrent Requests** is performed as part of the **Recover from a Data Ingest Failure** procedure (Section 16.6.2). The **ECS Ingest** GUI provides the Ingest Technician with a means of recovering from exceeding the maximum number of concurrent requests.

Table 16.6-18 presents (in a condensed format) the steps required to recover from exceeding the maximum number of concurrent requests. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If the **ECS Ingest** GUI is not already being displayed and it is decided to increase the system request threshold, launch the **ECS Ingest** GUI (refer to Section 16.2.2).
- The **ECS Ingest** GUI is displayed.

2 **Single-click** on the **Operator Tools** tab.
- The **Operator Tools** screen is displayed.

3 **Single-click** on the **Modify System Parameters** tab.
- The **Modify System Parameters** screen is displayed.

4 To modify the volume threshold enter (in the **Request Threshold - New:** field):

<request threshold>

- The *current* value for the request threshold is printed on the corresponding line for reference purposes.

5 **Single-click** on the **OK** button at the bottom of the **Operator Tools: Modify System Parameters** tab to save the changes to system parameters.

- The changes are invoked.

6 **Single-click** on the **Monitor/Control** tab.

- The **Monitor/Control** screen is displayed.

7 **Single-click** on the **All Requests** button.

- Alternatively, either a particular **Data Provider** or **Request ID** may be specified as described in the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

8 **Single-click** on the **Text View** button.

9 If the data ingest request is to be re-initiated, monitor the subsequent ingest.

- For detailed instructions refer to the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

Table 16.6-18. Recover from Exceeding the Maximum Number of Concurrent Requests - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	Launch the **ECS Ingest** GUI (if necessary)	Use procedure in Section 16.2.2
2	**Operator Tools** tab	**single-click**
3	**Modify System Parameters** tab	**single-click**
4	**<request threshold>** (**Request Threshold - New:** field)	**enter text**
5	**OK** button (**Operator Tools: Modify System Parameters** tab) (if applicable)	**single-click**
6	**Monitor/Control** tab	**single-click**
7	**All Requests** button	**single-click**
8	**Text View** button	**single-click**
9	If the data ingest request is to be re-initiated, monitor the subsequent ingest	Use procedure in Section 16.2.5

16.6.2.12 Recover from Insufficient Disk Space

After the receipt of the PDR**,** a disk space allocation is requested from the Data Server, and a time-out timer for the disk allocation is set. In the event that the Data Server has insufficient disk space, the time-out timer will expire. The Ingest Subsystem notifies the operator that the ingest request is waiting for Data Server disk allocation. Upon receipt of the alert, the Ingest Technician must decide whether to wait for disk space to be allocated automatically or to cancel the request.

16.6.2.13 Recover from Exceeding the Expiration Date/Time Period

If data are unavailable but the time period during which that data were to have been made available has expired, the error is logged in the event log, and a PAN is sent to the data provider indicating expiration date/time exceeded. The Ingest Technician receives an alert on his/her screen, then contacts the data provider to resolve the problem.

Table 16.6-19 presents (in a condensed format) the steps required to recover from exceeding the expiration date/time period. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Contact (by telephone or e-mail) the data provider to discuss the following issues:
- Report the ingest failure.
- Discuss what has been discovered from reviewing the failure event data.
- Determine whether the data provider will re-initiate the data ingest request.

2 If the data ingest request is to be re-initiated, monitor the subsequent ingest.
- For detailed instructions refer to the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

Table 16.6-19. Recover from Exceeding the Expiration Date/Time Period - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	Contact the data provider	**contact data provider**
2	If the data ingest request is to be re-initiated, monitor the subsequent ingest	Use procedure in Section 16.2.5

16.6.2.14 Recover from File Transfer (ftp) Error

During the course of data exchange via ftp, any of the following error conditions may arise:

- Failure to establish TCP/IP connection.
- Erroneous ftp command.

- File not found (listed in PDR, but not found on disk).
- File not readable due to permissions.

Should a problem develop during an ftp file transfer due to any of the above error conditions, an operator-tunable number of attempts are made to pull the data. In the event that problems cannot be resolved within this operator-tunable number of attempts, ECS and the data provider's operations personnel have the option to coordinate data delivery via another medium (e.g., D3 tape) if specified in the relevant ICD or Operations Agreement.

After numerous unsuccessful data transfer retries, an error is logged into the event log, the Ingest Technician is notified and a PAN is sent to the data provider indicating ftp failure. The Ingest Technician reviews all current ingest requests using the **Monitor/Control** (**All Requests)** screen of the **ECS Ingest** GUI to determine whether other communication-related failures have occurred and may consult with the data provider(s) to resolve the problem.

Table 16.6-20 presents (in a condensed format) the steps required to recover from file transfer (ftp) error. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If it is not already being displayed, launch the **ECS Ingest** GUI (refer to Section 16.2.2).
- The **ECS Ingest** GUI is displayed.

2 **Single-click** on the **Monitor/Control** tab.
- The **Monitor/Control** screen is displayed.

3 Review all current ingest requests using the**ECS** Ingest GUI **Monitor/Control** (**All Requests)** screen to determine whether there are other failures that may be communication-related.
- For detailed instructions refer to the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

4 If there are other failures that may be communication-related, contact the DAAC Resource Manager to determine whether the ftp error is indeed communication-related and how to respond to the problem.

5 If it is decided either to increase the communication retry count or to re-initiate the ingest request, **single-**click on the Ingest GUI **Operator Tools** tab.
- The **Operator Tools** screen is displayed.

6 **Single-click** on the **Modify System Parameters** tab.
- The **Modify System Parameters** screen is displayed.

7 Review the current value for **Communication Retry Count**.

8 If it is decided to increase the communication retry count, go to the **Modify System Parameters on the Ingest GUI** procedure (Section 16.5.2).

9 Contact (by telephone or e-mail) the data provider to discuss the following issues:
- Report the ingest failure.
- Discuss what has been discovered from reviewing the failure event data.
- Determine whether the data provider will re-initiate the data ingest request.

10 If the data ingest request is to be re-initiated, monitor the subsequent ingest.
- For detailed instructions refer to the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

Table 16.6-20. Recover from File Transfer (ftp) Error - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	Launch the **ECS Ingest** GUI (if necessary)	Use procedure in Section 16.2.2
2	**Monitor/Control** tab	**single-click**
3	Review all current ingest requests to identify any other failures that may be communication-related	Use procedure in Section 16.2.5
4	If there are other failures that may be communication-related, contact DAAC Resource Manager	**contact DAAC Resource Manager**
5	**Operator Tools** tab (if applicable)	**single-click**
6	**Modify System Parameters** tab (if applicable)	**single-click**
7	Review the current value for **Communication Retry Count**	**read text**
8	Modify the communication retry count (if applicable)	Use procedure in Section 16.5.2
9	Contact the data provider (if applicable)	**contact data provider**
10	If the data ingest request is to be re-initiated, monitor the subsequent ingest	Use procedure in Section 16.2.5

16.6.2.15 Recover from Processing Errors

Ingest processing errors may require Ingest Technician intervention. The following problems are examples of processing errors.

- **Missing Required Metadata.**
- **Unknown Data Type.**
- **Template Out of Synchronization (Sync).**
- **Unavailable File Type.**
- **Metadata Validation Error.**
- **Missing Optional Data Files.**

Table 16.6-21 presents (in a condensed format) the steps required to recover from processing errors. If you are already familiar with the procedures, you may prefer to use the quick-step

table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 If the processing error involves missing required metadata or an unknown data type, contact (by telephone or e-mail) the data provider to request the data provider to make the necessary corrections and re-initiate ingest.

2 If the processing error involves an out-of-sync template or an unavailable file type, submit a trouble ticket in accordance with the trouble ticketing procedures.

3 If the processing error involves an out-of-sync template or an unavailable file type, contact (by telephone or e-mail) the data provider to request the data provider to re-initiate ingest when the problem has been fixed.

4 If the processing error involves a metadata validation error or missing optional data files and if the processing template instructions indicate to continue inserting the data, contact (by telephone or e-mail) the data provider to provide notification that the data have been flagged as bad.

- If the processing template instructions indicate to continue inserting the data, the following events occur:
  - The error is logged in the event log,
  - The data are flagged as bad.
  - A preprocessing failure alert for each data granule appears on the Ingest Technician's screen.
  - A Metadata Problem Report is generated.

5 If the processing error involves a metadata validation error or missing optional data files and if the processing template instructions require the rejection of the data, contact (by telephone or e-mail) the data provider to request the data provider to make the necessary corrections and re-initiate ingest.

- If the template instructions require the rejection of the data, the normal notices and alerts are sent, including a PAN to the external data provider indicating the preprocessing failure.

6 If the data ingest request is to be re-initiated, monitor the subsequent ingest.

- For detailed instructions refer to the **Monitor/Control Ingest Requests** procedure (Section 16.2.5).

Table 16.6-21. Recover from Processing Errors - Quick-Step Procedures

Step	What to Enter or Select	Action to Take
1	If the processing error involves missing required metadata or an unknown data type, contact the data provider	**contact data provider**
2	If the processing error involves an out-of-sync template or an unavailable file type, submit a trouble ticket	Use procedure in Chapter 8
3	If the processing error involves an out-of-sync template or an unavailable file type, contact the data provider	**contact data provider**
4	If the processing error involves a metadata validation error or missing optional data files and if the processing template instructions indicate to continue inserting the data, contact the data provider	**contact data provider**
5	If the processing error involves a metadata validation error or missing optional data files and if the processing template instructions require the rejection of the data, contact the data provider	**contact data provider**
6	If the data ingest request is to be re-initiated, monitor the subsequent ingest	Use procedure in Section 16.2.5

16.6.2.16 Recover from D3 Ingest Failures

Table 16.6-22 presents (in a condensed format) the steps required to recover from D3 ingest failures. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Submit a request to the Database Administrator to change the value assigned to the **SAVEONEXIT** parameter (for EcInReqMgr) to "true" in the Configuration Registry.

2 Make a request to the Operations Controller to perform a warm restart of the Ingest Request Manager (EcInReqMgr) so the server will read the configuration change.

- While the **SAVEONEXIT** parameter is true, the staging disk for each D3 ingest request will not get automatically deleted when the request has completed.
- Each D3 staging disk will need to be manually deleted when it is no longer needed.

3 Make a request to the Operations Controller to set up an instance of polling with delivery record to be used for D3 recovery.

- Use **MEDIA_RECOVERY** as the "data provider" if it is available.

- If **MEDIA_RECOVERY** is not available, use **ASTER_GDS**.

4 If using ASTER_GDS polling, change the **TransferFlag** in the **InExternalDataProviderInfo** database table to 0.
- Setting the **TransferFlag** in the **InExternalDataProviderInfo** database table to 0 prevents the files on the staging disk from being transferred by ftp again.
- For detailed instructions refer to the **Modify System Parameters in the Ingest Database Using ISQL** procedure (Section 16.5.3).

5 Make a request to the Operations Controller to run the instance of polling that is to be used for D3 recovery.

6 Start a D3 ingest request using the **ECS Ingest** GUI.
- For detailed instructions refer to the **Perform Media Ingest from D3 Tape** procedure (Section 16.3.3).

7 Verify that the D3 ingest request is successfully submitted to the Request Manager.
- A pop-up window is displayed on the GUI when the request has been submitted successfully to the Request Manager.

8 Search the EcInGUI.ALOG file for the message "Staging disk allocation succeeded for RequestID=" concerning the D3 ingest request.
- For detailed instructions refer to the **Check Log Files** procedure (Section 16.6.1.2).
- The message includes the staging disk tag in the following format: <**storage management key**>**:Disk::*n***
- The *n* corresponds to the disk*n* directory for the appropriate staging disk server.
  - For example, **DIP1_OPS:Disk::2** could refer to the following path: /usr/ecs/OPS/CUSTOM/dip/x0dis01/data/StagingArea/disk2.

9 If the PDR is not in the Ingest GUI Input Data directory, submit a request to the Database Administrator to identify the value assigned to **IngestGUIInputData**.
- For example:

  IngestGUIInputData = /CUSTOM/icl/t1icg01/data/LOCALDISK

10 If the PDR is not in the Ingest GUI Input Data directory, before the request completes at the command line prompt enter:

cd /usr/ecs/<MODE>/<Ingest Remote Post Mode Base Path>/<data provider>/Request

11 At the command line prompt enter:

ls –la

- A list of subdirectories and files in the current directory is displayed.
- The list should include the PDR for the D3 ingest request.

12 At the command line prompt enter:

cp <file name> /<path>

- Copy the PDR file to another location so that it can be edited.
- The **<filename>** represents the PDR file for the D3 ingest request.
- The **<path>** represents the path to the directory where the PDR file can be stored while it is being edited.

13 When the D3 ingest request completes, observe the request state on the **ECS Ingest** GUI **Monitor/Control** window.

- If the request state is "Successful," no recovery is necessary.
- If the request state is "Partial_Failure" or "Failed," a decision must be made as to whether recovery should be attempted (depending on what errors occurred).
  - The decision can be made using the PAN, the granule states, and the Ingest log files.
  - Double-clicking on the request on the Ingest GUI displays the granule states.
  - The PAN can be found in the following directory: /usr/ecs/<MODE>/<Ingest Remote Post Mode Base Path>/<data provider>/Response
  - **<Ingest Remote Post Mode Base Path>** (for EcInReqMgr) is specified in the Configuration Registry; for example:

    IngestRemotePostModeBasePath = /CUSTOM/icl/x0icg01/data/remote
- If it is decided not to attempt to do any recovery or if the request state is "Successful," go to Step 34.

14 Access a terminal window logged in to the appropriate host for getting access to the PAN.

- Either of the following hosts is acceptable:
  - Operations Workstation (e.g., **e0acs03, g0acs02, l0acs01, n0acs03**).
  - Ingest Server host (e.g., **e0icg11, g0icg01, l0icg01, n0icg01**).
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

15 At the command line prompt enter:

cd /usr/ecs/<MODE>/<Ingest Remote Post Mode Base Path>/<data provider>/Response

16 At the command line prompt enter:

ls –la

- A list of subdirectories and files in the current directory is displayed.
- The list should include the PAN for the D3 ingest request.

17 At the command line prompt enter:

pg <file name>

- **<file name>** refers to the PAN file to be reviewed.
- The first page of the PAN file is displayed.
- Although this procedure has been written for the **pg** command, any UNIX editor or visualizing command (e.g., **vi**, **view, more**) can be used to review the PAN file.

18 Review the PAN file to identify which granule(s)/file(s) had errors.

- Even if all files in the granule do not show errors, they are all needed to perform the recovery.
- To exit from **pg** at the **:** prompt enter:

  q

  – The command line prompt is displayed.

19 If the PDR is in the Ingest GUI Input Data directory, at the command line prompt enter:

cd /usr/ecs/<MODE>/<Ingest Remote Post Mode Base Path>/<data provider>/Request

20 If the PDR is in the Ingest GUI Input Data directory, at the command line prompt enter:

ls –la

- A list of subdirectories and files in the current directory is displayed.
- The list should include the PDR for the D3 ingest request.

21 If the PDR is in the Ingest GUI Input Data directory, at the command line prompt enter:

cp <file name> /<path>

- Copy the PDR file to another location so that it can be edited.
- The <**file name**> represents the PDR file for the D3 ingest request.
- The **<path>** represents the path to the directory where the PDR file can be stored while it is being edited.

22 If the PDR is in the Ingest GUI Input Data directory, at the command line prompt enter:

vi <file name>

- The PDR file is displayed by the vi text editor.
- Although this procedure has been written for the **vi** command, any UNIX editor can be used to edit the file.

23 Edit (using **vi** editor commands) the copied PDR to be used for the granule(s) to be recovered.

- Remove the file groups that are not being recovered.
- Change the TOTAL_FILE_COUNT to reflect the number of files left in the PDR.
- Change the ORIGINATING_SYSTEM to the data provider being used for Polling.
- Change all DIRECTORY_ID fields from NOT_USED to the staging disk path determined in Step 8.
- For each file group, need to add "NODE_NAME = <host name>;" with the host name where the files are.
  - For example, NODE_NAME = e0dis01;.
- The following vi editor commands are useful:
  - **h** (move cursor left).
  - **j** (move cursor down).
  - **k** (move cursor up).
  - **l** (move cursor right).
  - **a** (append text).
  - **i** (insert text).
  - **x** (delete a character).
  - **u** (undo previous change).
  - **Esc** (switch to command mode).

24 Press the **Esc** key.

25 At the **vi** editor prompt enter:

ZZ or **:wq!**

- New values are entered and saved in the PDR file.
- UNIX prompt is displayed.
- If desired, rename the PDR so the corresponding PAN file will have a different name from that of the original tape request.

26 At the command line prompt enter:

mv <file name> /<path>

- The **<path>** represents the path to the polling directory; e.g., /usr/ecs/TS2/CUSTOM/icl/t1icg01/data/pollMEDIA_RECOVERY or /usr/ecs/TS2/CUSTOM/icl/t1icg01/data/pollASTER_GDS.
- The PDR file is moved to the polling directory.

27 Observe the new D3 ingest request on the **ECS Ingest** GUI **Monitor/Control** window.

28 When the D3 ingest request completes, observe the request state on the **ECS Ingest** GUI **Monitor/Control** window.

- If the request fails and needs to be resubmitted, go to Step 29.
- If the request completed successfully or if it is determined that retrying it will not make it successful, go to Step 30.
- If it is decided not to attempt to do any recovery or if the request state is "Successful," go to Step 34.

29 If the request fails and needs to be resubmitted, make a request to the Operations Controller to perform a cold restart of polling.

- Request restart of pollMEDIA_RECOVERY or pollASTER_GDS as applicable.
- The PDR will be repolled.

30 Access a terminal window logged in to the appropriate host for getting access to the PDR.

- Either of the following hosts is acceptable:
  - Operations Workstation (e.g., **e0acs03, g0acs02, l0acs01, n0acs03**).
  - Ingest Server host (e.g., **e0icg11, g0icg01, l0icg01, n0icg01**).
- Log-in is described in the **Log in to ECS Hosts** procedure (Section 16.2.1).

31 At the command line prompt enter:

cd /<path>

- The **<path>** represents the path to the polling directory; e.g., /usr/ecs/TS2/CUSTOM/icl/t1icg01/data/pollMEDIA_RECOVERY or /usr/ecs/TS2/CUSTOM/icl/t1icg01/data/pollASTER_GDS.

32 At the command line prompt enter:

ls –la

- A list of subdirectories and files in the current directory is displayed.
- The list should include the PDR for the D3 ingest request.

33 At the command line prompt enter:

rm <file name>

- **<file name>** refers to the PDR file to be deleted.
- The PDR file is deleted.

34 At the command line prompt enter:

cd /<path>

- The **<path>** represents the path to the directory above the staging disk directory; e.g., if the staging disk path is /usr/ecs/OPS/CUSTOM/dip/x0dis01/data/StagingArea/disk2, go to the /usr/ecs/OPS/CUSTOM/dip/x0dis01/data/StagingArea directory.

35 To delete the staging disk and the files in it at the command line prompt enter:

rm -rf disk<number>

36 Make a request to the Operations Controller to perform a warm restart of the appropriate staging disk server.

- The staging disk server will synchronize its database with the actual staging disks in use.

37 Repeat Steps 6 through 36 (as necessary) to perform additional D3 media ingests.

38 When all D3 media ingests for the session have been completed, submit a request to the Database Administrator to change the value assigned to the **SAVEONEXIT** parameter (for EcInReqMgr) to "false" in the Configuration Registry.

39 Make a request to the Operations Controller to perform a warm restart of the Ingest Request Manager (EcInReqMgr).

- The server reads the configuration change at restart.

Table 16.6-22. Recover from D3 Ingest Failures - Quick-Step Procedures (1 of 3)

Step	What to Enter or Select	Action to Take
1	Request the Database Administrator to set **SAVEONEXIT** to "true" in the Configuration Registry	**contact Database Administrator**
2	Request the Operations Controller to warm restart the Ingest Request Manager	**contact Operations Controller**
3	Request the Operations Controller to set up an instance of Polling with delivery record to be used for D3 recovery	**contact Operations Controller**
4	If using ASTER_GDS polling, change the **TransferFlag** in the **InExternalDataProviderInfo** database table to 0	Use procedure in Section 16.5.3
5	Request the Operations Controller to run the instance of polling that is to be used for D3 recovery	**contact Operations Controller**

Table 16.6-22. Recover from D3 Ingest Failures - Quick-Step Procedures (2 of 3)

Step	What to Enter or Select	Action to Take
6	Start a D3 ingest request (perform media ingest from D3 tape)	Use procedure in Section 16.3.3
7	Verify that the D3 ingest request is successfully submitted to the Request Manager (observe pop-up window)	**observe**
8	Search the EcInGUI.ALOG file for the message "Staging disk allocation succeeded for RequestID=" concerning the D3 ingest request	Use procedure in Section 16.6.2.1
9	If the PDR is not in the Ingest GUI Input Data directory, request the Database Administrator to identify the value assigned to **IngestGUIInputData**	**contact Database Administrator**
10	**cd /usr/ecs/<MODE>/<Ingest Remote Post Mode Base Path>/<data provider>/Request**	**Enter text, press Enter**
11	**ls –la**	**Enter text, press Enter**
12	**cp <file name> /<path>**	**enter text, press Enter**
13	Observe the request state	**read text**
14	UNIX window (Operations Workstation or Ingest Server)	Use procedure in Section 16.2.1
15	**cd /usr/ecs/<MODE>/<Ingest Remote Post Mode Base Path>/<data provider>/Response**	**enter text, press Enter**
16	**ls –la**	**enter text, press Enter**
17	**pg <file name>**	**enter text, press Enter**
18	Review the PAN file to identify which granule(s)/file(s) had errors	**read text**
19	**cd /usr/ecs/<MODE>/<Ingest Remote Post Mode Base Path>/<data provider>/Request** (if applicable)	**enter text, press Enter**
20	**ls –la** (if applicable)	**enter text, press Enter**
21	**cp <file name> /<path>** (if applicable)	**enter text, press Enter**
22	**vi <file name>** (if applicable)	**enter text, press Enter**
23	Use vi editor commands to modify the PDR (if applicable)	**enter text**
24	**Esc** key (if applicable)	**enter text**
25	**ZZ** (or **:wq!**) (if applicable)	**enter text, press Enter**
26	**mv <file name> /<path>** (if applicable)	**enter text, press Enter**
27	Observe the new D3 ingest request (if applicable)	**read text**
28	When the D3 ingest request completes, observe the request state	**read text**
29	If the request fails and needs to be resubmitted, request the Operations Controller to perform a cold restart of polling	**contact Operations Controller**

Table 16.6-22. Recover from D3 Ingest Failures - Quick-Step Procedures (3 of 3)

Step	What to Enter or Select	Action to Take
30	UNIX window (Operations Workstation or Ingest Server)	Use procedure in Section 16.2.1
31	**cd /<path>**	**enter text, press Enter**
32	**ls –la**	**enter text, press Enter**
33	**rm <file name>**	**enter text, press Enter**
34	**cd /<path>**	**enter text, press Enter**
35	**rm -rf disk<number>**	**enter text, press Enter**
36	Request the Operations Controller to warm restart the appropriate staging disk server	**contact Operations Controller**
37	Repeat Steps 6 through 36 as necessary	
38	Request the Database Administrator to set **SAVEONEXIT** to "true" in the Configuration Registry (when appropriate)	**contact Database Administrator**
39	Request the Operations Controller to warm restart the Ingest Request Manager	**contact Operations Controller**

16.6.3 Recover from Failure to Store Data

Successful data storage and retrieval functions are the heart of ECS. Successful ingest of data depends on Storage Management (STMGT) inserting the product into the archive and Science Data Server (SDSRV) inserting the associated metadata into the inventory. Staging disks and cache managers for the Archive server and the FTP server are also involved in this process. To check the functioning of these elements, it is necessary that the ESDTs for the data to be inserted have been installed and are available, and that subscriptions have been registered.

Troubleshooting failures to store data (as well as other failures) often requires the review of server or application log files. The general procedure for checking log files is described in Section 16.6.1.2. A procedure for reviewing the debug log file for the Storage Management Request Manager server is provided in Section 16.6.3.1.

Table 16.6-23 presents (in a condensed format) the steps required to recover from a failure to store data. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Check the Storage Management Request Manager Server debug log file for error messages concerning the failure to store data.

- For detailed instructions on checking the Request Manager Server debug log refer to the **Check the Request Manager Server Debug Log** procedure (Section 16.6.3.1).

2 If necessary, check the Science Data Server debug log file for error messages concerning the failure to store data.

- Examine the section of the log with entries near the time of the problem, looking for error messages that indicate communication failure.
- If the log file entries indicate a communication problem, note the server(s) with which there is impairment or disruption of communication.
- For detailed instructions refer to the **Check Log Files** procedure (Section 16.6.1.2).

3 If necessary, check the Archive Server debug log file for error messages concerning the failure to store data.

- Examine the section of the log with entries near the time of the problem, looking for error messages that indicate communication failure.
- If the log file entries indicate a communication problem, note the server(s) with which there is impairment or disruption of communication.
- For detailed instructions refer to the **Check Log Files** procedure (Section 16.6.1.2).

4 If Step 2 and/or Step 3 resulted in detection of a problem in the interaction of SDSRV and/or Archive Server with other servers, at the host(s) for those servers, check the server debug log(s) for error messages concerning the failure to store data.

- The following logs may be involved:
  - EcDsStStagingDiskServerDebug.log (on the FSMS Server host).
  - EcDsStCacheManagerServerDebug.log (on the FSMS Server host).
  - EcDsStRequestManagerServerDebug.log (e.g., on the Distribution Server host).
  - EcIoAdServerDebug.log (e.g., on the Interface Server 01 host).
  - EcSbSubServerDebug.log (e.g., on the Interface Server 02 host).
- For detailed instructions refer to the **Check Log Files** procedure (Section 16.6.1.2).

5 If the problem cannot be identified and fixed without help within a reasonable period of time, call the help desk and submit a trouble ticket in accordance with site Problem Management policy.

Table 16.6-23. Recover from Failure to Store Data - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	Check the Storage Management Request Manager Server debug log file for error messages concerning the failure to store data	Use procedure in Section 16.6.3.1
2	Check the Archive Server debug log file for error messages concerning the failure to store data (if necessary)	Use procedure in Section 16.6.1.2
3	Check the Archive Server debug log file for error messages concerning the failure to store data (if necessary)	Use procedure in Section 16.6.1.2

Table 16.6-23. Recover from Failure to Store Data - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take
4	Check other server debug log(s) for error messages concerning the failure to store data (if necessary)	Use procedure in Section 16.6.1.2
5	Call the help desk and submit a trouble ticket (if applicable)	Use procedure in Chapter 8

16.6.3.1 Check the Request Manager Server Debug Log

The procedure to **Check the Request Manager Server Debug Log** is a part of the **Recover from Failure to Store Data** procedure (Section 16.6.3). It is performed in response to an insert failure.

The Request Manager server processes requests from external clients (processes outside of Storage Management). Requests between Storage Management servers are passed directly from one server to another.

- Requests that require one of the Storage Management servers to perform processing are checkpointed [except requests that can be serviced solely through Structured Query Language (SQL)].
  - Checkpointing involves recording the request's state (e.g., "checkpointed," "failed," "completed") in the database to assist in error recovery.
- Requests that can be serviced solely through SQL are considered "trivial" requests.
  - Trivial requests are not checkpointed.
  - Examples include attaching to a staging disk, getting capacity, and getting block size.
  - Trivial requests submitted from outside Storage Management are serviced by the Request Manager server.
  - Trivial requests originating within Storage Management are passed directly from the client to the database server.

The Request Manager server (like other Storage Management servers) can manage several concurrent activities. This is accomplished through the use of threads. There are several different kinds of threads:

- Manager thread.
  - One per Storage Management server.
  - Responsible for dequeuing requests and assigning them to service threads.
  - Checks for cancelled requests.
- Service thread.
  - Multiple threads per Storage Management server.
  - Responsible for the actual servicing of requests.
  - Logs all progress including all changes of request state.
  - Notifies submitter when request has been completed.
- Receptionist thread.

  - One per Storage Management server.
  - Registers the server as "up" in the database.
  - Sits on a socket, waiting for connections from other Storage Management servers.
  - Unregisters the server at shutdown.
- Inbound RPC thread.
  - Spawned by a request from a Storage Management client.
  - Hands off the request to the manager thread and waits for completion of the request.
- Housekeeper thread.
  - Watches for completed requests that haven't previously been seen and processed.

Information concerning Request Manager server processing of requests (identified by thread) is recorded in the Request Manager server debug log (assuming some level of debug log recording is specified in the Registry database).

Trivial requests typically involve the following types of activities:

- Inbound RPC thread appears with a request.
- Manager thread dequeues the request and assigns it to a service thread.
- Service thread recognizes the thread as "trivial."
  - A "No checkpointing required -- going straight to responded" message is recorded in the Request Manager server debug log.
- Service thread executes the database transaction for results.
  - When the request is completed, a "Done servicing" message is recorded in the Request Manager server debug log.
  - If the request fails, an "Unable to service" message is recorded in the Request Manager server debug log.
- Service thread hands the results to the inbound RPC thread.
  - A "Notifying the client" message is recorded in the Request Manager server debug log.
- Inbound RPC thread silently returns to the client with the results.

Non-trivial requests are forwarded to the appropriate Storage Management server (e.g., EcDsStFtpServer, EcDsStStagingDiskServer, EcDsStArchiveServer) for processing.

- Some of the same types of entries are made in the Request Manager server debug log for non-trivial requests as for trivial requests. For example:
  - "Waking up service thread" (Request Manager is preparing to process the request).
  - "Done servicing" (request processing has been completed).
  - "Unable to service" (the request has failed).
- Although some trivial requests include "token" statements, tokens are characteristic of non-trivial requests.
- A token includes request information that varies with the type of operation to be performed.

- For example, a token for an ftp request might include the following types of data:
  - Stored procedure (e.g., DsStFRInsert) [other types of stored procedures include DsStSDRInsert and DsStGRMapLogicalArchiveId].
  - RPC ID (e.g., RPCId=1821_535_1109-1124464729_171062001_x0ins01.xdc.ecs.nasa.gov:SBSVSDSV1DSDD1DSDD4:).
  - Username.
  - Encrypted password.
  - Host.
  - Source path.
  - Destination path.
  - External request ID.
  - Server name (e.g., EcDsStFtpServerNONE) [other types of operations might involve the EcDsStStagingDiskServerDRP1 for example].
  - Type of operation (e.g., FtpPush) [other types of operations include ArRetrieve, SDAllocateDisk, SDLinkFile].
  - Submitter (e.g., DSDD) [other types of operations might involve SDSV].
  - Priority.
- The server to which the request was sent is identified by name (ServerName).
- Transaction ID is embedded in the RPC ID (the portion before the first colon in the RPC ID).

A "transaction" may involve multiple operations on a host or several hosts. Consequently, multiple threads may be used on each relevant host.

Table 16.6-24 presents (in a condensed format) the steps required to check the Request Manager Server debug log. If you are already familiar with the procedures, you may prefer to use the quick-step table. If you are new to the system, or have not performed this task recently, you should use the detailed procedures that follow.

1 Access a terminal window logged in to the Distribution Server host.
- Examples of Distribution Server host names include **e0dis02, g0dis02, l0dis02, n0dis02**.
- For detailed instructions refer to the **Log in to ECS Hosts** procedure (Section 16.2.1).

2 At the UNIX command line prompt enter:

cd /usr/ecs/<MODE>/CUSTOM/logs

- **<MODE>** is current mode of operation.
- "**logs**" is the directory containing Request Manager Server debug log files (e.g., EcDsStRequestManagerServerDebug.log).

3 At the command line prompt enter:

pg <file name>

- **<file name>** refers to the appropriate Request Manager debug log file.
- For example:

  pg EcDsStRequestManagerServerDebug.log

- The content of the first page of the specified file is displayed.
- Although this procedure has been written for the **pg** command, any UNIX editor or visualizing command (e.g., **vi**, **view**, **more**) can be used to review the log file.

4 At the **:** prompt enter:

/<date> <time>

- **<date> <time>** refers to the approximate date and time of the problem.
  - For example:

    06/18/01 12:17:31

- The file is searched for the specified text.
  - If the specified text is in the log file, the following type of response is displayed.

    ...skipping forward
    06/18/01 12:17:31: Thread ID : 105 : DsShTSStorage: creating the MutexVec for this thread
    […]

  - If the specified text is not in the log file, the following type of response is displayed.

    Pattern not found:

  - If the specified text is not in the log file, verify that the proper file was opened (Step 3) and that the date and time were entered correctly (Step 4).

5 At the **:** prompt enter:

/Unable to service

- **pg** searches the file for the specified text.
  - If the specified text is in the log file, the following type of response is displayed.

    ...skipping forward
    2:IngestRQ409GR1 Unable to service | Thread 52
    […]

  - If the specified text is not in the log file, the following type of response is displayed.

    Pattern not found:

- If the specified text is in the file, go to Step 7.
- If the specified text is not in the file, go to Step 6.

6 Examine the contents of the log file to determine which thread is associated with the problem being investigated.

- The following **pg** commands (at the **:** prompt) are useful:
  - ***n*** then **Return/Enter** (go to Page *n*).
  - **Return/Enter** or **+1** then **Return/Enter** (go down to the next page).
  - **-1** then **Return/Enter** (go back to the preceding page).
  - **+*n*** then **Return/Enter** (go down *n* number of pages).
  - **-*n*** then **Return/Enter** (go back *n* number of pages).
  - **+*n*l** then **Return/Enter** (go down *n* number of lines).
  - **-*n*l** then **Return/Enter** (go back *n* number of lines).
  - **$** then **Return/Enter** [go to the last page (end of file)].
  - **q** then **Return/Enter** (exit from **pg**).

7 At the **:** prompt enter:

<search text>

- To search back toward the beginning of the file enter:

  ^Waking up service thread <number>^

- To search back toward the end of the file enter:

  /Waking up service thread <number>

- For example:

  ^Waking up service thread 52^

  - The file is searched back toward the beginning of the file for the specified text.
- If the specified text is in the log file, the following type of response is displayed.

  ...skipping backward
  06/18/01 12:17:31: Thread ID : 102 : Waking up service thread 52 | Thread 102 […]

- If the specified text is not in the log file, the following type of response is displayed.

  Pattern not found:

- The entries "Waking up service thread <number>" and "Unable to service | Thread <number>" bracket the thread servicing in which an error occurred.

NOTE: Thread IDs are reused frequently. There are likely to be many processes with the same thread ID in any particular log file. It is important to follow the correct instance of the thread.

NOTE: It is likely that the Request Manager would try again to process a failed request. Subsequent request processing may use the same thread ID or a different thread ID. However, it would involve the same transaction ID.

- A "No checkpointing required -- going straight to responded" entry associated with the thread ID indicates that the request is "trivial."

8 At the **:** prompt enter:

/SEARCHING

- The file is searched for the specified text.
  - If the specified text is in the log file, the following type of response is displayed.

    ...skipping forward
    06/18/01 12:17:31: Thread ID : 52 : SEARCHING FOR: 30148 (Found) |

    Thread 52
    06/18/01 12:17:31: Thread ID : 52 : SEARCHING FOR: 30148 (Found) | Thread 52
    06/18/01 12:17:31: Thread ID : 52 : DsStStoredProcedures::Execute - ERROR: Could not execute stored procedure | Thread 52
    06/18/01 12:17:31: Thread ID : 52 : Error encountered in stored procedure | Thread 52
    06/18/01 12:17:31: Thread ID : 52 : DBIF:Execute: Ultimate SQL: ROLLBACK TRANSACTION OUTER_7077776 | Thread 52
    06/18/01 12:17:32: Thread ID : 52 : 1_4501810_1217-1124633447_169062001_x0icg01.xdc.ecs.nasa.gov:IPOBIPOB1INRM1IGSA15:IngestRQ409GR1 Done servicing | Thread 52
    06/18/01 12:17:32: Thread ID : 52 : 1_4501810_1217-1124633447_169062001_x0icg01.xdc.ecs.nasa.gov:IPOBIPOB1INRM1IGSA15:IngestRQ409GR1 Unable to service | Thread 52
    06/18/01 12:17:32: Thread ID : 52 : 1_4501810_1217-1124633447_169062001_x0icg01.xdc.ecs.nasa.gov:IPOBIPOB1INRM1IGSA15:IngestRQ409GR1 Marked as unassigned | Thread 52
    06/18/01 12:17:32: Thread ID : 52 : 1_4501810_1217-1124633447_169062001_x0icg01.xdc.ecs.nasa.gov:IPOBIPOB1INRM1IGSA15:IngestRQ409GR1 Notifying the client | Thread 52
    06/18/01 12:17:32: Thread ID : 52 : Waiting for work | Thread 52
    06/18/01 12:17:32: Thread ID : 52 : Waking up manager thread | Thread 52
    […]

  - In the example the expression **SEARCHING** is associated with Thread ID 52.
  - The context of the SEARCHING statement indicates the type and source of the problem; in this case there appears to be a problem executing a stored procedure.
  - If the specified text is not in the log file, the following type of response is displayed.

    Pattern not found:

9 If the expression **SEARCHING** is not associated with the specified thread in the lines displayed, repeat Step 8.

10 If necessary, at the **:** prompt enter:

-2l

- **pg** simulates scrolling the screen backward two lines (or any other number of lines that is typed at the prompt).
  - The file is redisplayed to include the two lines that preceded the page previously displayed.
  - For example:

    ...skipping backward
    06/18/01 12:17:31: Thread ID : 52 : DBIF:Execute: Ultimate SQL: exec DsStSDAttachDisk "/usr/ecs/TS2/CUSTOM/pdps/x0spg01/data/DpPrRm/x0spg01_disk", "SDSV", 0 | Thread 52
    06/18/01 12:17:31: Thread ID : 52 : SEARCHING FOR: 30148 (Found) | Thread 52
    06/18/01 12:17:31: Thread ID : 52 : SEARCHING FOR: 30148 (Found) | Thread 52
    06/18/01 12:17:31: Thread ID : 52 : DsStStoredProcedures::Execute - ERROR: Could not execute stored procedure | Thread 52
    06/18/01 12:17:31: Thread ID : 52 : Error encountered in stored procedure | Thread 52
    […]

  - The additional lines preceding "SEARCHING FOR" in the example indicate that the stored procedure in which the error was encountered is DsStSDAttachDisk.

11 To quit the **pg** application at the **:** prompt enter:

q

- **pg** exits from the Request Manager server debug log file.

12 If the request is a trivial request, go to Step 22.

13 If the request is a non-trivial request, open a separate UNIX window.
- The results of related operations on the server involved in performing copy or ftp functions for the transaction are going to be checked in a separate UNIX window.

14 Access a terminal window logged in to the appropriate server host for the server involved in performing copy or ftp functions for the transaction.
- Examples of appropriate server host names include **e0drg11, g0drg01, l0drg01, n0drg01**.
- For detailed instructions refer to the **Log in to ECS Hosts** procedure (Section 16.2.1).

15 At the shell prompt enter:

grep '<Transaction ID>' <file name> | grep 'LogProgress'

- For example:

  grep 'af610628-' EcDsStArchiveServerDebug.log | grep 'LogProgress'

- **<file name>** refers to the name of the log file for the process involved in performing copy or ftp functions for the transaction.
- **<Transaction ID>** refers to the Transaction ID associated with the applicable request.
- In this example af610628-1dd1-11b2-a047-af3a589fd88e is the relevant Transaction ID.
  - However, usually it is not necessary to use the entire Transaction ID in the command; a representative sample (e.g., af610628- from the example) should be sufficient.
  - References to other Transaction IDs and entries that do not contain the string "LogProgress" are filtered out so references to the specified Transaction ID that contain the string "LogProgress" are the only log entries displayed. The string "LogProgress" is a filter for references to stored procedure DsStGRLogProgress.
  - Progress is logged for copy and ftp input/output at each block.
  - The following type of response is displayed:

    06/26/01 12:46:00: Thread ID : 65674 : myTransactionList[1]: exec DsStGRLogProgress "af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD10DSDD1DSDD1:MoPGE02#sy14182000TS2SC:MOD03.001:55732", 0, 1, "files" | Thread 65674
    06/26/01 12:46:00: Thread ID : 65674 : DBIF:Execute: Ultimate SQL: exec DsStGRLogProgress "af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD10DSDD1DSDD1:MoPGE02#sy14182000TS2SC:MOD03.001:55732", 0, 1, "files" | Thread 65674
    06/26/01 12:46:43: Thread ID : 65674 : : 06/26/01 12:46:43: read ID : 2:46:43: myTransactionmyTransactionList[1]: exec DsStGRLogProgress "af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD10DSDD1DSDD1:MoPGE02#sy14182000TS2SC:MOD03.001:55732", 60, 60, "MB"List[1]: exec DsStGRLogProgress "af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD10DSDD1DSDD1:MoPGE02#sy14182000TS2SC:MOD03.001:55732", 60, 60, "MB"65714read 65674 : 74
    06/26/01 12:46:43: Thread ID : 65674 : DBIF:Execute: Ultimate SQL: exec DsStGRLogProgress "af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD10DSDD1DSDD1:MoPGE02#sy14182000TS2SC:MOD03.001:55732", 60, 60, "MB"0DBIF:Execute: Ultimate SQL: exec DsStGRLogProgress "af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD10DSDD1DSDD1:MoPGE02#sy14182000TS2SC:MOD03.001:55732", 60, 60, "MB"06/26/01 12:46:43: 6/26/01 12:46:43: | Thread : 65714read 65674 : 74

- If no progress is indicated, go to Step 22.

16 **Single-click** in the UNIX window for the Distribution Server host.

17 In the UNIX window for the Distribution Server host at the command line prompt enter:

/usr/ecs/<MODE>/CUSTOM/logs

- Change to the logs directory in the appropriate mode.

18 At the command line prompt enter:

grep '<Transaction ID>' <file name> | grep 'Done servicing'

- **<file name>** refers to the appropriate Request Manager debug log.
- For example:

  grep 'af610628-' EcDsStRequestManagerServerDebug.log | grep 'Done servicing'

- If the operation has been completed, the following type of response is displayed:

  06/26/01 12:46:00: Thread ID : 52 : af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD10DSDD1DSDD1:MoPGE02#sy14182000TS2SC:MOD03.001:55732 Done servicing | Thread 52
  06/26/01 12:46:44: Thread ID : 52 : af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD10DSDD1DSDD1:MoPGE02#sy14182000TS2SC:MOD03.001:55732 Done servicing | Thread 52
  06/26/01 12:46:45: Thread ID : 52 : af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD2DSDD1DSDD3:MoPGE02#sy14182000TS2SC:MOD03.001:55732 Done servicing | Thread 52
  06/26/01 12:46:47: Thread ID : 52 : af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD2DSDD1DSDD3:MoPGE02#sy14182000TS2SC:MOD03.001:55732 Done servicing | Thread 52
  06/26/01 12:46:47: Thread ID : 52 : af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD2DSDD1DSDD7:MoPGE02#sy14182000TS2SC:MOD03.001:55732 Done servicing | Thread 52
  06/26/01 12:46:50: Thread ID : 52 : af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD2DSDD1DSDD7:MoPGE02#sy14182000TS2SC:MOD03.001:55732 Done servicing | Thread 52
  06/26/01 12:46:51: Thread ID : 52 : af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD4:MoPGE02#sy14182000TS2SC:MOD03.001:55732 Done servicing | Thread 52
  06/26/01 12:46:56: Thread ID : 52 : af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD4:MoPGE02#sy14182000TS2SC:MOD03.001:55732 Done servicing | Thread 52
  06/26/01 12:46:56: Thread ID : 52 : af610628-1dd1-11b2-a047-af3a589fd88e:PDPSSDSV1DSDD1DSDD8:MoPGE02#sy14182000TS2SC:MOD03.001:55732 Done servicing | Thread 52
  06/26/01 12:46:59: Thread ID : 52 : af610628-1dd1-11b2-a047-

af3a589fd88e:PDPSSDSV1DSDD1DSDD8:MoPGE02#sy14182000TS2SC:MOD 03.001:55732 Done servicing | Thread 52

  - The statement "Done servicing" shows that the operation has been completed; however, it provides no indication as to whether the operation succeeded or failed.
  - If "Done servicing" is followed by "Unable to service," (as described in Step 19) the operation failed.
- If the operation has not been completed, no file entries are displayed (the UNIX prompt is displayed).
  - It may just be slow to complete.
- If the operation has been completed, go to Step 19.
- If the operation has not been completed, go to Step 20.

19 At the shell prompt enter:

grep '<Transaction ID>' <file name> | grep 'Unable to service'

- **<file name>** refers to the appropriate Request Manager debug log.
- For example:

  grep '2a7d4168-' EcDsStRequestManagerServerDebug.log | grep 'Unable to service'

- If the request has failed, the following type of response is displayed:

  06/26/01 12:56:22: Thread ID : 52 : 2a7d4168-1dd2-11b2-8c52-99d0f708dce5:PDPSSDSV1:MoPGE02#sy14182000TS2MOD02OBC Unable to service | Thread 52
  06/26/01 12:56:22: Thread ID : 52 : 2a7d4168-1dd2-11b2-8c52-99d0f708dce5:PDPSSDSV4:MoPGE02#sy14182000TS2MOD02OBC Unable to service | Thread 52

  - If the operation has failed, return to Step 7.
- If the operation has not failed, no file entries are displayed (the UNIX prompt is displayed).

20 At the shell prompt enter:

tail -f <file name> | grep '<Transaction ID>'

- **<file name>** refers to the appropriate Request Manager debug log.
- **<Transaction ID>** refers to the Transaction ID associated with the applicable request.
- For example:

  tail -f EcDsStRequestManagerServerDebug.log | grep 'af610628-'

- If new entries are being posted to the log, the operation has not finished yet.
  - If the same entries continue to be repeated over and over, there could be a problem with the server.
  - Notify the Operations Controller/System Administrator of suspected server problems.
- If it is necessary to exit from a tailed log, enter:

  ^c [Ctrl c]

21 If the operation has not finished yet, monitor the tailed log for awhile.
- If the operation does not seem to finish (i.e., if entries continue to be made to the tailed log) after a reasonable period of time (e.g., 30 minutes), notify the Operations Controller/System Administrator of the problem.
- If it is necessary to exit from a tailed log, enter:

  ^c [Ctrl c]

22 If problems were detected in the Request Manager server debug log and/or the log file for the process involved in performing copy or ftp functions for the transaction, notify the Operations Controller/System Administrator of the problem.

23 Return to the **Recover from Failure to Store Data** procedure (Section 16.6.3).

Table 16.6-24. Check the Request Manager Server Debug Log - Quick-Step Procedures (1 of 2)

Step	What to Enter or Select	Action to Take
1	UNIX window (Distribution Server)	**single-click** or use procedure in Section 16.2.1
2	**cd /usr/ecs/<MODE>/CUSTOM/logs**	**enter text, press Enter**
3	**pg <file name>** (Request Manager debug log)	**enter text, press Enter**
4	**/<date> <time>**	**enter text, press Enter**
5	**/Unable to service**	**enter text, press Enter**
6	Determine which thread is associated with the problem being investigated	**read text**
7	**<search text>** (Waking up service thread <number>)	**enter text, press Enter**
8	**/SEARCHING**	**enter text, press Enter**
9	Repeat the preceding step (if necessary)	
10	**-2l** (if necessary)	**enter text, press Enter**
11	**q** (when necessary)	**enter text, press Enter**
12	UNIX window (appropriate server host)	**single-click** or use procedure in Section 16.2.1

Table 16.6-24. Check the Request Manager Server Debug Log - Quick-Step Procedures (2 of 2)

Step	What to Enter or Select	Action to Take
13	**grep '<Transaction ID>' <file name> | grep 'LogProgress'**	**enter text, press Enter**
14	UNIX window (Distribution Server)	**single-click**
15	**/usr/ecs/<MODE>/CUSTOM/logs**	**enter text, press Enter**
16	**grep '<Transaction ID>' <file name> | grep 'Done servicing'**	**enter text, press Enter**
17	**grep '<Transaction ID>' <file name> | grep 'Unable to service'**	**enter text, press Enter**
18	**tail -f <file name> | grep '<Transaction ID>'**	**enter text, press Enter**
19	Monitor the tailed log for awhile (if applicable)	**read text**
20	If problems were detected in the log files, notify the Operations Controller/System Administrator of the problem	**contact Operations Controller**
21	Return to the **Recover from Failure to Store Data** procedure	Use procedure in Section 16.6.3

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